

Northern Neck Planning District Commission
Virginia Coastal Zone Management Program
Blue/Green Infrastructure Planning Protection Focal Area
FY 2008-2009, Task 12.05



View of Upper Cat Point Creek above County Bridge, Richmond County

Richmond and Westmoreland County



Virginia Coastal Zone
MANAGEMENT PROGRAM



This project was funded by the Northern Neck Planning District Commission and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA08NOS4190466 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

Table of Contents

Cover Page	Page 1
Table of Contents	Page 2
 Section I	
Consensus Building Report	Pages 3 - 11
 Section II	
Richmond County Supporting Materials	Page 12
Slideshow Presented at the September 8, 2009 Richmond County Planning Commission Meeting	Pages 13 -32
Maps Created for Consideration of Possible New Conservation Areas	Pages 33 - 44
Westmoreland County Supporting Materials	Page 45
Slideshow Presented at the September 28, 2009 Westmoreland County Planning Commission Work Session	Page 46 - 57
Maps Created for Consideration of Possible New Conservation Areas	Pages 59 - 69

NNPDC Green Infrastructure

Consensus Building Report

Richmond and Westmoreland Counties



View of Westmoreland County from the Potomac River, Fall 2009



Virginia Coastal Zone
MANAGEMENT PROGRAM



2008-2009

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I. Richmond County

NNPDC staff met with Richmond County staff utilizing GIS data from the Department of Conservation and Recreation's Virginia Conservation Needs Land Assessment (VCLNA) data. After the initial meeting, Richmond County staff requested that while the new datasets were intriguing, if they were considering adding some of the data to the county Comprehensive Plan, they would need all of the elements in the current Comprehensive Plan's Future Land Use Map to see where the other components of the plan are located in the county (e.g. future residential growth areas, potential reservoirs, etc.). After that meeting NNPDC staff loaded the Richmond County Future Land Use Plan GIS data layers from the existing Comprehensive Plan, as well as the county's digital tax maps and scheduled another meeting with Richmond County staff.

After examining the GIS VCLNA data alongside the county's Future Land Use Plan, county staff commented on how the existing conservation areas depicted on the existing plan lined up with the VCLNA's higher priority Natural Area Cores. The overall comments from staff were that the state data (which was not in existence in 1999) is corroborating what the county had done in the past to protect highly valuable natural areas in the county. The external validation of choices made over ten years ago was attributed to the local staff's intimate knowledge of the local county landscape, habitat areas and patterns of development within the county. After looking at the VCLNA data and the current Comprehensive Plan's Future Land Use Plan, county staff were pleased with the location of the existing Comprehensive Plan's conservations areas. Regarding adding additional conservation "blue green infrastructure" areas, county staff mentioned they would like to have input from the public, Comprehensive Planning Committee, and Planning Commission before identifying any new areas.

NNPDC staff began assisting Richmond County staff on their Comprehensive Plan revision process. After several discussions with county staff, and comprehensive Plan Committee members, it was decided that asking the Chesapeake Bay Network for Education of Municipal Officials (CBNEMO) to assist would help engage the citizenry into the revision process. There were multiple meetings planned and organized by NNPDC, Richmond County, and CBNEMO staff. The first CBNEMO meeting was called "Planning Your Community" and explained the Comprehensive Plan and its role in guiding development in the County. That introduction session, held on July 6, 2009 was attended by approximately 50 people and emphasized identifying important natural and cultural resources in order to plan for conservation as well as development. The next public CBNEMO workshop entitled "Growth and Development" was held on August 18, 2009 and approximately 40 persons attended.

NNPDC staff met with the Richmond County Planning Commission on September 8th, introducing the concept of blue-green infrastructure planning. A presentation was given, describing green infrastructure and the planning process envisioned for incorporating green infrastructure into the upcoming comprehensive plan revision. Maps from the Virginia Conservation Needs Land Assessment (VCLNA) were used, as well as maps modified from the NNPDC VCLNA showing Richmond County data only. The multitude of benefits accrued from implementing a green infrastructure plan were stressed,

including preserving open space and the rural quality of life that the people had said was important in a County Comprehensive Plan Survey at the end of 2008.

The Richmond County Planning Commissioners were, for the most part, receptive to the idea of planning for green infrastructure. However, one member stated that we should work with individual landowners in the county whose lands are in these proposed areas. NNPDC staff noted that working with individual landowners would be incredibly time consuming, and much more effort than could be accomplished in one calendar year. NNPDC staff also mentioned that the county is charged with managing land use, and that the county, through the public process, determines where to steer growth in the county through the comprehensive plan, and by the same token, should determine which areas in the county that should not be developed. The same Richmond County Planning Commission member that made the previous comment about working with landowners noted that at a new lakefront subdivision in the county, where some lots are as large as 13 acres, but that there is only one buildable site on the parcel. NNPDC staff replied that perhaps those are the areas of the county that should not be developed in the first place. The areas of the county where there are steep slopes, highly erodible soils and wetland features in close proximity might be best suited to stay in a natural state because developing them will result in increased pollution from stormwater runoff from land disturbance and increased impervious surfaces adjacent to these sensitive areas. Towards the end of the meeting another planning commission member offered the suggestion that they might look into incorporating clustering outside of the green infrastructure areas in the county subdivision ordinance to assist in the implementation of the green infrastructure plan. As always, with a group of people, opinions vary.

The next CBNEMO public informational workshop in the series was held on September 15, 2009, and was entitled "Our Valuable Resources." Speakers included the local Virginia Tech Agricultural Extension Agent, speaking about agricultural resources; the local Department of Forestry staff person, speaking on forestry resources; representatives from DCR, presenting on water, wetland, and marine resources and the National Fish and Wildlife Service Rappahannock River National Wildlife Refuge Manager, presenting on the Rappahannock Wildlife Refuge assets. NNPDC staff presented on the concept of blue-green infrastructure planning to the public that attended. NNPDC staff presented several maps, most all depicting data from the VCLNA for Richmond County.

At that meeting, when CBNEMO staff asked after the presentations to those attending what surprised them and what things stood out from what they had heard earlier. One landowner stood up and stated that he was disturbed that someone in Richmond is creating maps that show that his land has high priority ecological natural forested cores in it. His concern was that by mapping this data, his land will be harder to develop and he would get less money for his land because someone in Richmond made a map. Several other landowners rallied around his comments and questioned the existing Comprehensive Plan's identification of conservation areas in the Future Land Use Plan Map. This landowner stated that there are thousands of acres in these Future Land Use Plan Conservation Areas, and that these lands are now devalued as a result, and much harder to develop. Several landowners stated that the Conservation Areas in the existing Comprehensive Plan should be removed, that the citizens of Richmond County never asked for or wanted this kind of impediment to development in their county. A few landowners expressed their concern over lack of notification of the addition of the conservation areas in the old

Comprehensive Plan back in 1999. County staff present noted that according to other staff that were employed by the county in 1999 very few people attended the public meeting before the Comprehensive Plan was adopted. The citizen went on, stating that he believes that the local government is conspiring with the State and Federal government to devalue land in Richmond County (by putting the land in conservation areas in the local Comprehensive Plan), so the Rappahannock River National Wildlife Refuge can purchase the land to expand the wildlife refuge at artificially deflated land values, therefore saving federal dollars. While not all those attending expressed these views only a handful of persons responded to these comments. County staff explained that it is the local government's role to plan for the future, this means planning for future growth, such as places in the county where industrial growth, business growth as well as residential growth should occur. Conversely, the county staff member stated that they are also charged with protecting surface and groundwater quality. The county staff member also reminded those in attendance about the countywide Comprehensive Plan survey that was sent out to residents a few months earlier where the majority of citizens who responded stated that they wanted to retain the rural quality of life as well as protect water quality in the county. Natural lands in the county help perform these functions to the benefit of all in the county, the county staff person explained. Another citizen brought up that county landowners have been taking care of their land well by themselves for over a hundred years, without the government telling them what to do, and they do not need more government intrusion now. That comment was countered by another citizen that said that now developers from outside the area are buying up land to develop. Furthermore, the commenter continued, these outside developers do not have the stewardship ethic that the native Richmond County landowners historically had, thus now is a good time to plan to preserve open, natural space.

On October 28, 2009 NNPDC staff met again with Richmond County staff regarding blue-green infrastructure planning in Richmond County's Comprehensive Plan. Concerns over citizen's comments regarding eliminating the previous conservation areas that are present in the existing Comprehensive Plan (Fones Cliff, Mulberry Island, the Marshes on both sides of the Downing Bridge (US 360) and Lancaster Creek) began the discussion. The fact that the state VCLNA high priority ecological natural cores coincided with the existing conservation areas in the Future Land Use Plan Map, gave credence to the establishment of these areas back in 1999. In addition the VACZM Coastal and Estuarine Land Conservation Program (CELP) Priority Map also shows several of the areas as high priority. At that time, back in 1998, advanced GIS data to corroborate the uniqueness of the local areas was not available. Therefore the county staff did a good job of identifying large tracts of high valued natural areas through local knowledge in the previous Comprehensive Plan. Discussions on how to enhance the conservation area planning ensued, and the only other area in the County with a concentration of high value ecological natural areas was the Cat Point Creek watershed corridor. County staff decided to propose an area with high value ecological natural cores of the Cat Point Creek watershed corridor to the Richmond County Comprehensive Plan Committee.

On December 28, 2009 NNPDC staff attended the Richmond County Comprehensive Plan Committee meeting and conducted a presentation showing maps that depicted the existing conservation areas from the old Comprehensive Plan Future Land Use Maps overlain atop the VCLNA, the CELP Priority Map and

the Priority Conservation Areas (PCA) Map. The coincidence of the old Comprehensive Plan conservation areas previously depicted and the area of high value were pointed out to the committee members, as well as the fact that state ecological and environmental data is now corroborating local decisions made over a decade ago. When looking at the VLCNA, CELP Priority Map as well as the PCA map, one area of high value in Richmond County was not covered by conservation areas, and that was the Cat Point Creek Corridor. Therefore, the NNPDC with support of the county staff recommended adding a portion of the Cat Point Creek watershed corridor to the Future Land Use Map of the updated Comprehensive Plan. The committee wanted to consider this, but first they wanted some additional information to get an idea of conservation activities in Richmond County. The Committee requested that the NNPDC calculate the acreage and percentage of the county using GIS:

1. Total County Land Area (and the total acreage subtracting the wetlands from the Conservation Areas)
2. Conserved Lands (lands in the county currently protected)
3. The existing Comprehensive Plan's conservation areas (and the total acreage subtracting the National Wetlands Inventory [NWI] wetlands and Chesapeake Bay 100 ft. Resource Protection Area [RPA] from the Conservation Areas)
4. The recommended conservation area (and the total acreage subtracting the National Wetlands Inventory [NWI] wetlands and Chesapeake Bay 100 ft. Resource Protection Area [RPA] from the conservation areas)

NNPDC staff completed the GIS analysis, created relevant maps with the results are contained in the chart on the following page.

Description	Area (Square Miles)	Percent of Total Land Area
Total County Land Area	192	100%
Total Conserved Lands (9-9-09)	15.71	8.2%
Total Existing Conservation Areas	22.09	11.5%
Total Existing Conservation Areas minus NWI and RPA	16.92	8.8%
Total Recommended Conservation Area	11.05	5.8%
Total Recommended Conservation Area minus NWI and RPA	7.91	4.1%
Total Existing and Recommended Conservation Areas	33.10	17.2%
Total Existing and Recommended Conservation Areas minus NWI and RPA	24.80	12.9%
Total Existing Conservation Areas + Conserved Areas - Overlap	35.95	18.7%
Total Existing Conservation Areas (minus NWI & RPA) + Conserved Areas - Overlap	30.78	16.0%
Total Existing and Recommended Conservation Areas + Conserved Areas - Overlap	46.08	24.0%
Total Existing and Recommended Conservation Areas (minus NWI & RPA) + Conserved Areas - Overlap	37.78	19.7%

As can be seen in the above chart, Richmond County already has a head start on conserving important natural lands within the county with their conservation areas in the Future Land Use Plan Map of the existing Comprehensive Plan. NNPDC staff hopes to continue that legacy and recommend adding a portion of the Cat Point Creek watershed to the county conservation areas in the updated Comprehensive Plan. The Cat Point Creek Watershed has been identified by the Nature Conservancy staff as one of the most pristine coastal watersheds in the mid-atlantic Area. A Watershed Management Plan was created for Cat Point Creek by the NNPDC, in partnership with the county and the Northern Neck Soil and Water Conservation District in 2003.

Maps that corroborate the numbers in the above chart were produced and will be presented at the April 26, 2010, Richmond County Comprehensive Plan Meeting. A presentation by NNPDC staff will continue the effort to protect blue-green infrastructure in Richmond County. The presentation has emphasis in

keeping the existing conservation areas intact in the updated Comprehensive Plan, and hopefully adding Cat Point Creek as a new conservation area.

I. Westmoreland County

NNPDC staff obtained the Virginia Conservation Needs Land Assessment (VCLNA) GIS data from the Virginia Department of Conservation and Recreation, clipped the multiple PDC-wide datasets to the boundary of Westmoreland County and produced maps to assist in blue-green infrastructure protection planning with county commissions, committees, staff and citizens. NNPDC staff loaded the relevant GIS data onto a laptop and met with Westmoreland County staff to begin strategizing the planning efforts. After presenting the multiple maps that depict significant natural resources , including ecologically significant areas, and important cultural areas, Westmoreland County staff were impressed and agreed that data of this type has never been available for local governments in Virginia. When asked to begin to narrow down some of the areas that might be best to protect within the county, county staff were reluctant to throw out any of the data, as it could be important later on. NNPDC relayed that there is an overwhelming amount of data to be absorbed in the many maps , and requested to reduce the complexity of the datasets by eliminating the lowest value category in each set , but county staff did not agree.

NNPDC staff met with the Westmoreland County Comprehensive Plan Committee on August 31, 2009. Other NNPDC staff had been working with the Comprehensive Plan Committee on issues other than the environment, leading the revision and updating of the county's Comprehensive Plan with guidance from the committee. NNPDC staff gave a presentation to the committee on how it would be beneficial to plan to identify high value natural areas in order to preserve these areas for the future through the updated county Comprehensive Plan. A presentation on the value of the benefits of blue-green infrastructure planning protection was given, with the latter half of the presentation focusing on the VCLNA datasets. The various models used to create the maps were discussed in detail, including the ecological model, the cultural asset model and the watershed integrity model. The Comprehensive Plan Committee was enthusiastic about the data available, and wanted to make sure it was included in the Comprehensive Plan. One member stated that this type of data has never been available to them in the past, and that this could help them in land use decisions in the future. Some members wanted to include all of the Department of Conservation's VCLNA maps, while others thought it might be better to distill all of the data down to one map to make it simple to understand. NNPDC staff were encouraged that the committee wanted to include the data in the updated Comprehensive Plan, even if they were unsure what form that it might take. The chairman of the committee is also a member of the planning commission, and he thought it would be a good idea for NNPDC staff to attend the September 28, 2009 Westmoreland County Planning Commission's work session. The chairman thought that the other planning commission members should be aware of the data available and have a hand in guiding the incorporation of this data into the updated Comprehensive Plan, and a work session would allow enough time to discuss the topic in detail.

At the September 28, 2009 planning commission work session, NNPDC staff presented a modified version of the previous presentation to the planning commission members, focusing more on the value

of blue-green infrastructure protection planning and benefits accrued by the community. The majority of the planning commission members were interested in the VCLNA data and how it might help them protect the natural resources of the county. The chairman was most enthusiastic of all, and lead most of the discussion. Planning commission members had some questions regarding several data sets, most notably the growth prediction models, the urban fringe (suburban) and outside the urban area (rural) growth vulnerability. After explaining the data was derived from the Chesapeake Bay Program's information and was created at a scale of the entire watershed, did the members realize that these were general trends in the region, although they did not agree with the predictions necessarily. Planning commission members agreed to have NNPDC staff return to the next meeting of the planning commission to further discuss blue-green infrastructure planning.

NNPDC staff brought a GIS laptop computer to the October 5, 2009 Westmoreland County Planning Commission meeting with a mapping project that included all of the Westmoreland County VCLNA data layers. The GIS software was used so that data layers could be turned on and off, as well as being able to modify the data to suit county preferences. NNPDC staff had planned on "localizing" the state data to fit Westmoreland county's vision for the future by modifying the data to fit local values and policy. When discussing how to incorporate the data into the comprehensive plan, NNPDC staff mentioned that the data was very complex, covered the majority of the County land area, and that it might be advantageous to reduce the areas in the county in order to focus efforts to viable blue-green infrastructure planning protection that would be realistic enough to be adopted. NNPDC staff suggested in the VCLNA ecological natural cores data layer, to eliminate the lowest category, the "general" ecological value category, in order to focus efforts on the higher value areas. Planning commission members stated that those areas could be important also, and that they did not want to "throw out" any good data that might be useful in the future. NNPDC staff again prompted the members to help localize the state data, asking planning commission members if they knew of any subdivisions or developments that were slated for near term development that might coincide with the cores. If there were areas in the county where this was the case, then the commission members should consider removing those cores, as they would be eliminated once they were reduced in size to less than the 100 acre threshold anyway. Again, the planning commission members stated they were not aware of any large scale developments in the county due to the poor economic conditions, and did not want to alter the state data for fear of losing valuable information.

The chairman of the planning commission mentioned that the VCLNA data sets could be included in the Comprehensive Plan, and when development proposals or re-zoning applications are presented to the planning commission, they could use the VCLNA maps to "score" the development proposal. The chairman reasoned that whenever a portion of the development encroached on an element of one of the VCLNA maps, then that application would be downgraded. The idea would be that county staff would encourage the developer to keep their development activities out of the areas identified in the VCLNA maps, and if not, a development proposal or re-zoning application could ultimately be denied if it impacts too many resources shown in the VCLNA data. This concept was agreed upon by the planning commission members, however, no formal policy has been developed on how the grading system would work within county administration or what scores would be given to the individual VCLNA elements.

The VCLNA maps that are to be included in the comprehensive plan are Conserved Lands, Known Conservation Sites, Ecologically Ranked Natural Area Cores, Natural Area Corridors, and Cultural Model Map. In addition to the maps, language that explains the value of blue-green infrastructure planning protection written by NNPDC staff was also included in the Comprehensive Plan Revision. Recognition of the ranking system discussed by the Planning Commission was included, in addition to noting that no formal action has been taken to develop or incorporate such a system into the county development review process. NNPDC staff will work with Westmoreland County staff to try to incorporate this concept into the planning process, after the Westmoreland County Comprehensive Plan is adopted by the Board of Supervisors with the VCLNA maps that the planning commission agreed to include intact. Obviously, the planning commission (and possibly the Board of Supervisors) will have the final say in what form the grading system will take and whether they formally adopt it.

Progress towards the adoption of the Westmoreland County's updated and revised Comprehensive Plan can be followed at : <http://www.westmoreland2030.org>.

Materials Produced by Northern
Neck Planning District Commission
to Support Task 12.05 Blue-Green
Infrastructure Planning Project,
Richmond County
2008-2009



Virginia Coastal Zone
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The Northern Neck Regional

Green Infrastructure Planning Project
Richmond County Planning Commission
Meeting, September 8th, 2009

So, what IS Green Infrastructure?

- Green Infrastructure refers to “An interconnected network of a wide range of landscape elements that support native species, maintain natural ecologic processes, sustain air and water resources, and contribute to the health and quality of life for communities and people.”

Source: *Green Infrastructure: Linking Landscapes and Communities*, Benedict and McMahon (2006)

What does Green Infrastructure Look Like?



What About Green Infrastructure Planning?

- Green Infrastructure Planning connects intact natural habitat areas (cores) through a network of corridors to allow people, wildlife, and plants to move across the landscape. A connected natural landscape makes species less susceptible to catastrophic events and more resilient because local populations can reinforce themselves.
- Instead of having natural areas “left over” after the majority of land has been developed, perhaps we should PLAN for which part of Richmond County would be best to stay in a natural state.

Northern Neck Regional Green Infrastructure Planning

- A focal area of the Virginia Coastal Zone Management Program, and executed by the local Planning District Commissions
- This planning is not only for all four counties of the Northern Neck region, but for the entire Coastal Zone of Virginia
- Concurrent Green Infrastructure Planning initiatives are going on in the Richmond and Fredericksburg Regions
- The goal is to get locally customized green infrastructure planning into all coastal zone counties Comprehensive Plans, to protect wildlife habitat, lessen climate change, and filter pollutants from storm water runoff

Benefits of Green Infrastructure Planning

- Protecting and preserving water quality and supply
- Providing cost-effective stormwater management and hazard mitigation
- Combating global warming (carbon sequestration) and improving air quality
- Preserving biodiversity and wildlife habitat
- Improving public health, quality of life and recreation networks
- Preserving open space and the rural quality of life that is associated with Richmond County

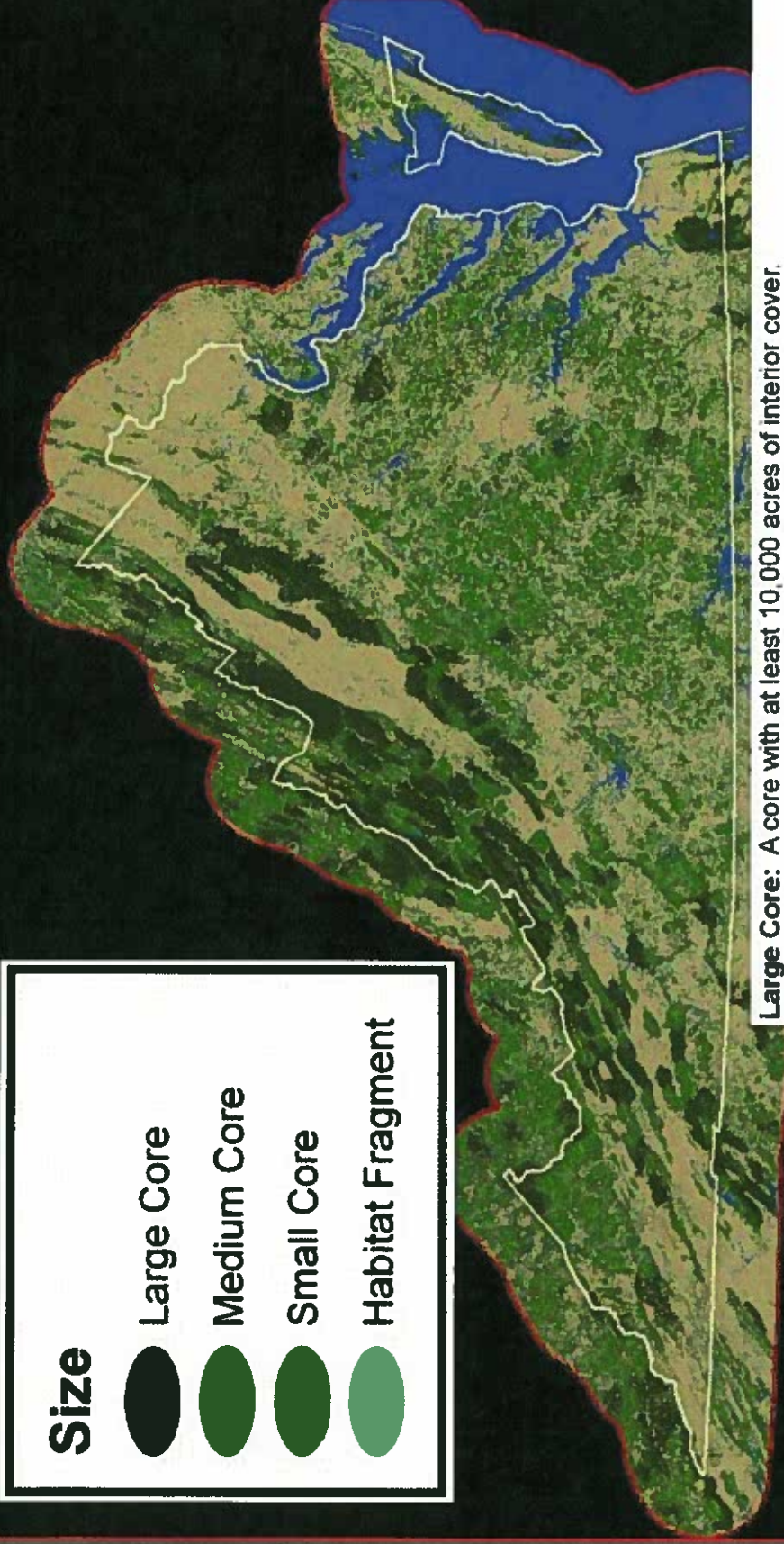
Modeling Tools to assist in Green Infrastructure Planning In Virginia

- Virginia Natural Landscape Assessment - Forest Habitats
- Cultural Model – Historic Resources
- Vulnerability Model – Growth Predictions and Threats
- Forest Economics Model - Economically Valuable Forests
- Agricultural Model – Lands Suitable for Farming
- Recreation Model – Trails, Parks, Hunting and Fishing
- Watershed Integrity Model – Health of Watersheds
- Ecological Integrity Model – Components Follow

We have talked about some of these things before, a healthy forest, is economically valuable for the timber, has a high value for wildlife, for recreation (hunting) as well as the lowest pollution runoff of any land use type.

Modeling tools created by the Virginia Department of Conservation and Recreation

VA Conservation Lands Needs Assessment: Core Prioritization in Virginia



Large Core: A core with at least 10,000 acres of interior cover.

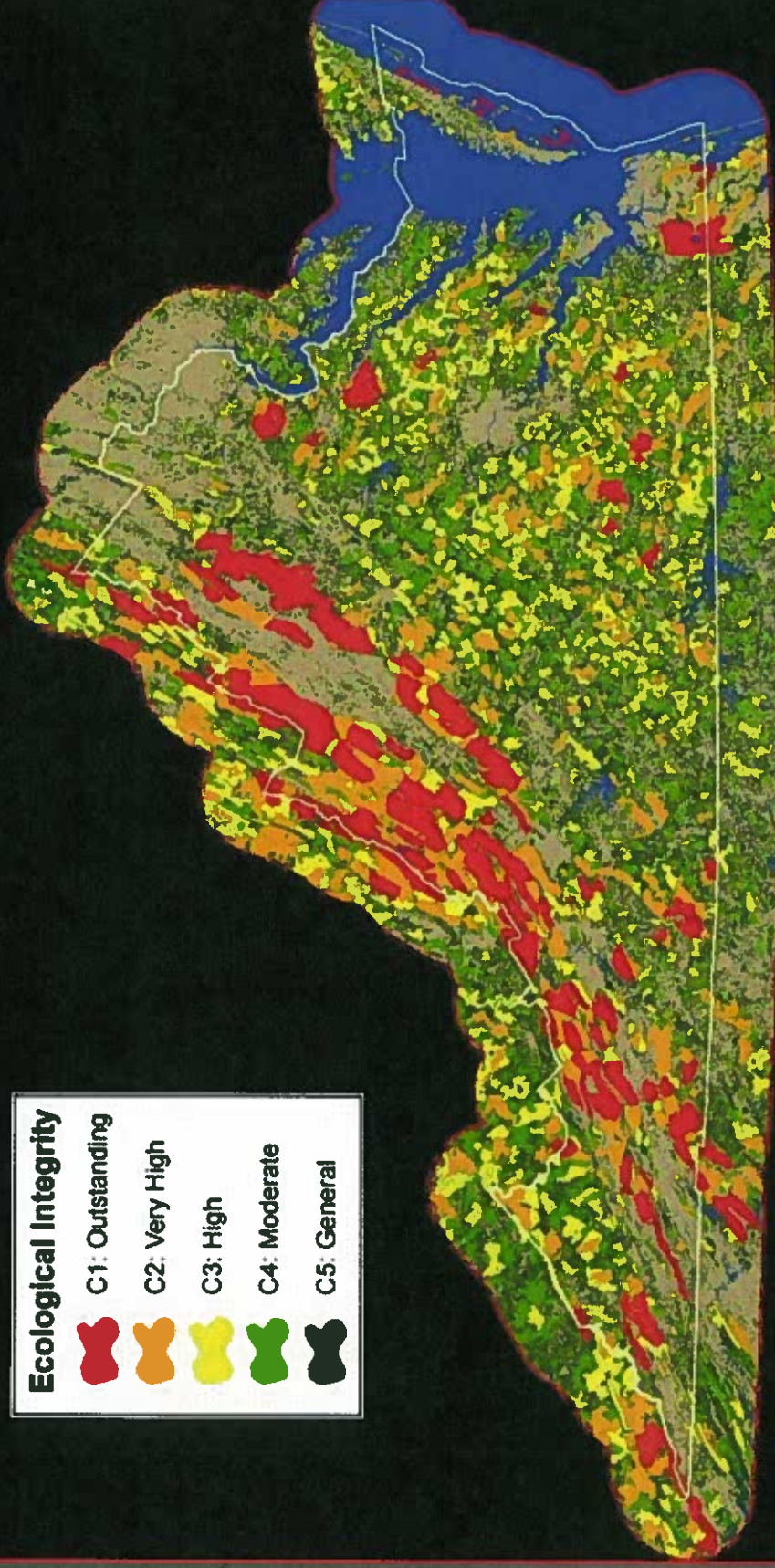
Medium Core: A core with 1,000 to 9,999 acres of interior cover.

Small Core: A core with 100 to 999 acres of interior cover.

Habitat Fragment: A patch of natural land cover with 10 to 99 acres of interior cover.

Data Provided by the Virginia Department of Conservation and Recreation

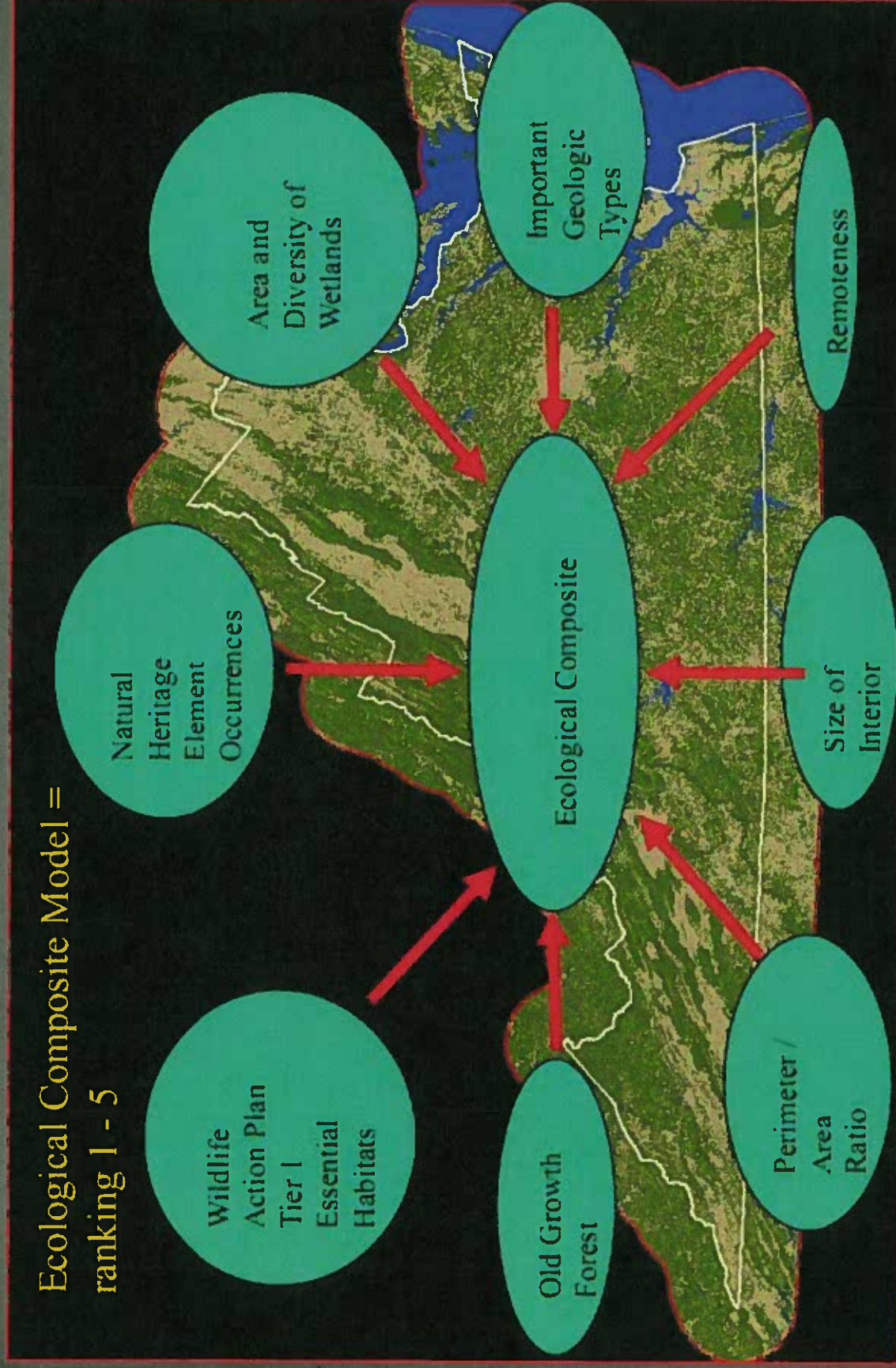
Virginia Conservation Needs Land Assessment: Ecological Model Prioritization



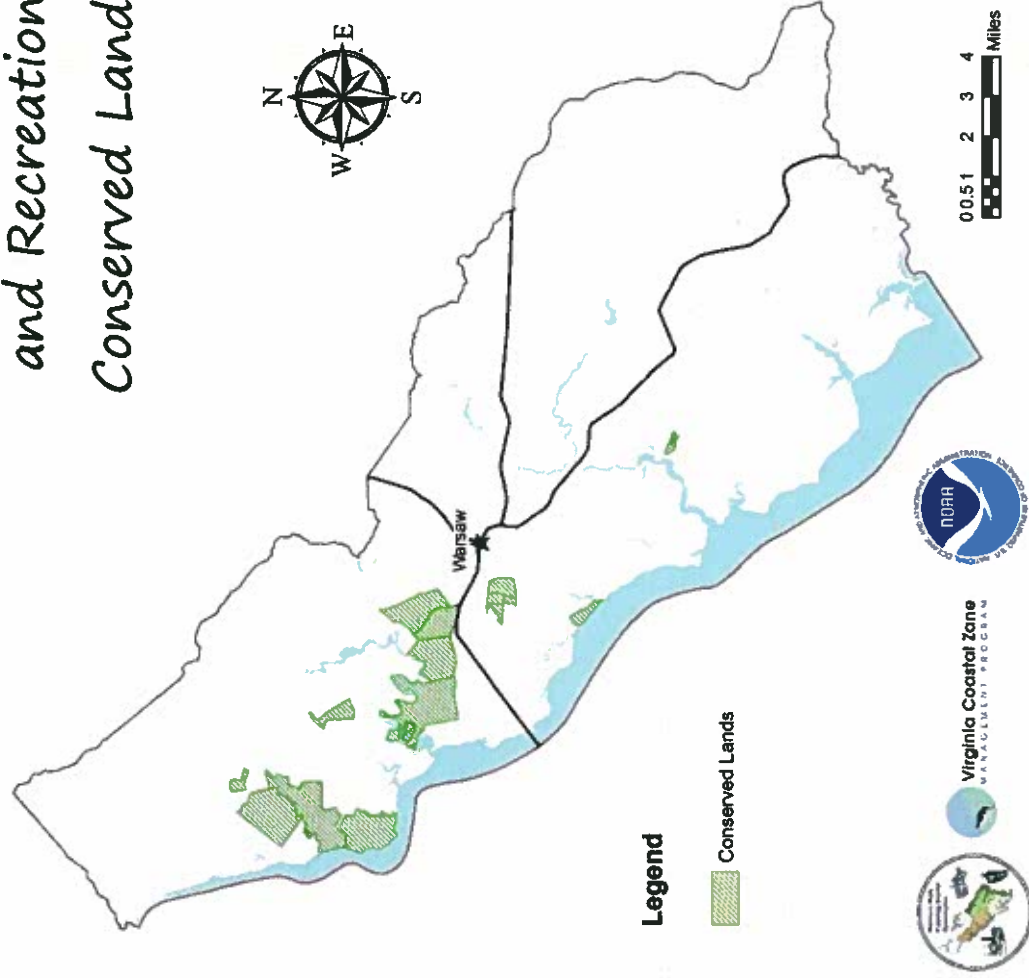
Data Provided by the Virginia Department of Conservation and Recreation

Virginia Conservation Needs Land Assessment: Ecological Model Components

Ecological Composite Model =
ranking 1 - 5



Richmond County: Department of Conservation and Recreation, Conserved Lands



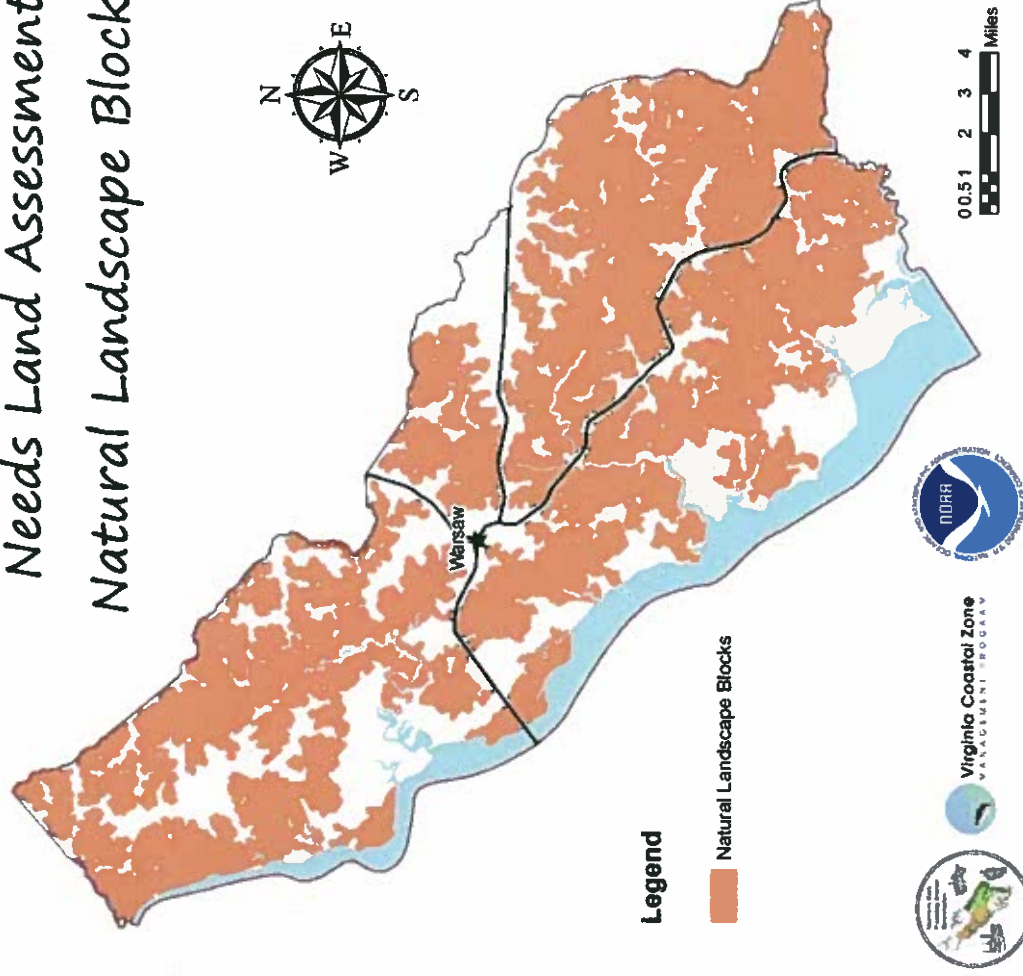
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Richmond County VCLNA Data

Definitions

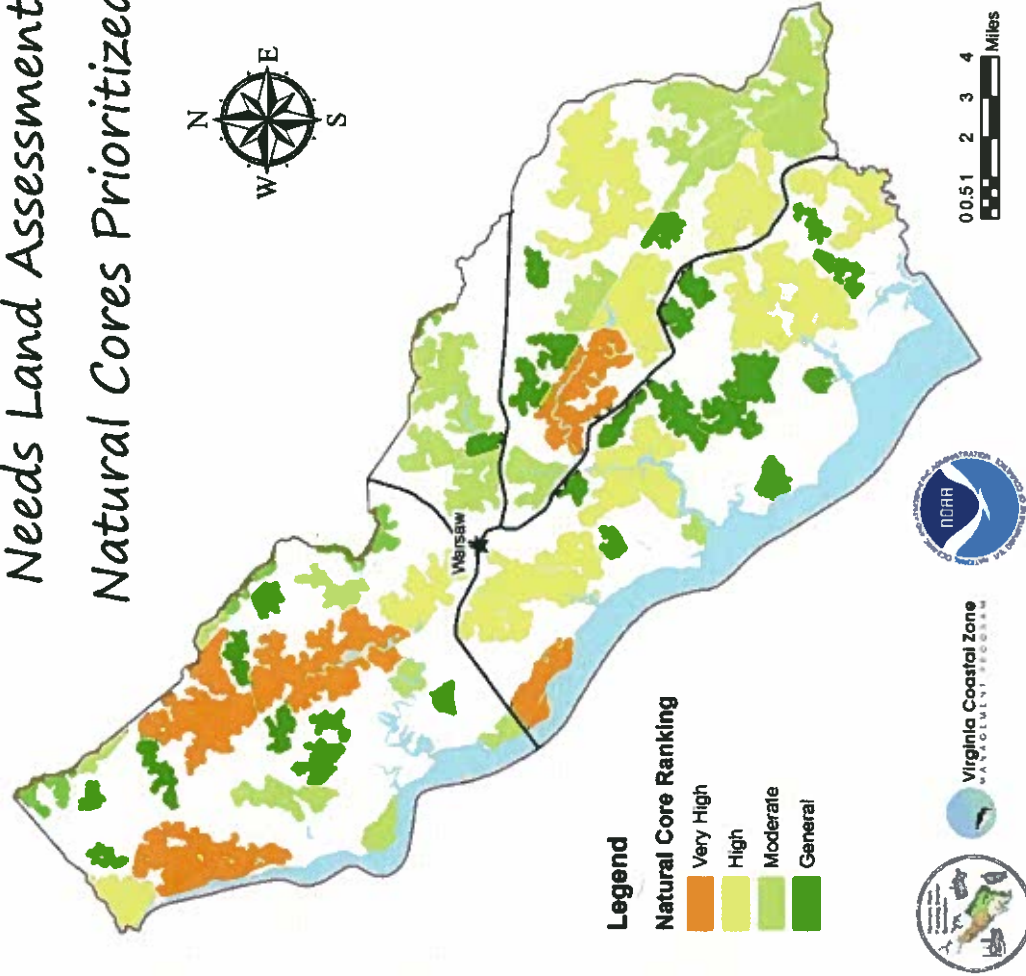
- Natural Cores – large patches of natural land with at least 100 acres of interior cover
- Natural Landscape Blocks- aggregations of one or more cores and contiguous natural cover
- Natural Corridors – links cores of high value together
- Conservation Sites – Specific sites where DCR-DNH have found endangered, rare or threatened species

Richmond County: Virginia Conservation Needs Land Assessment, Natural Landscape Blocks



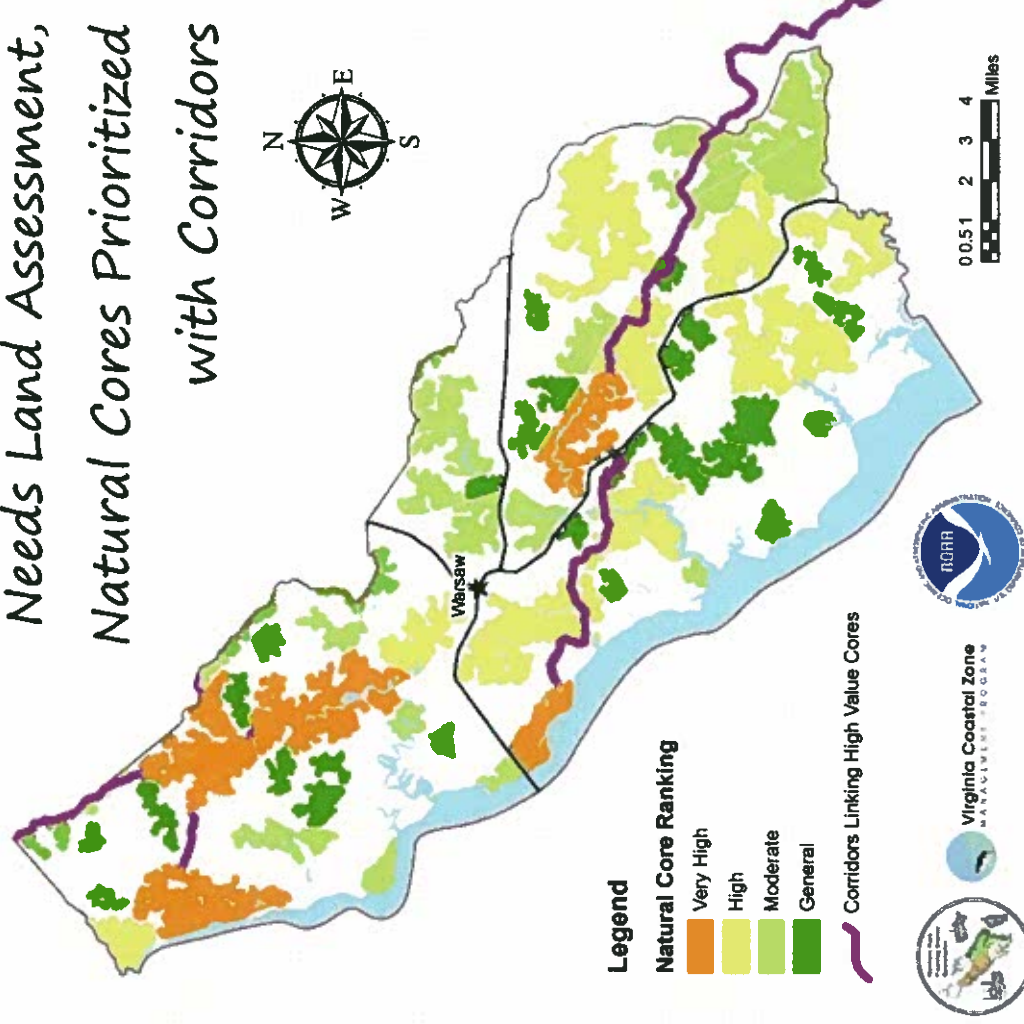
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Richmond County: Virginia Conservation Needs Land Assessment, Natural Cores Prioritized



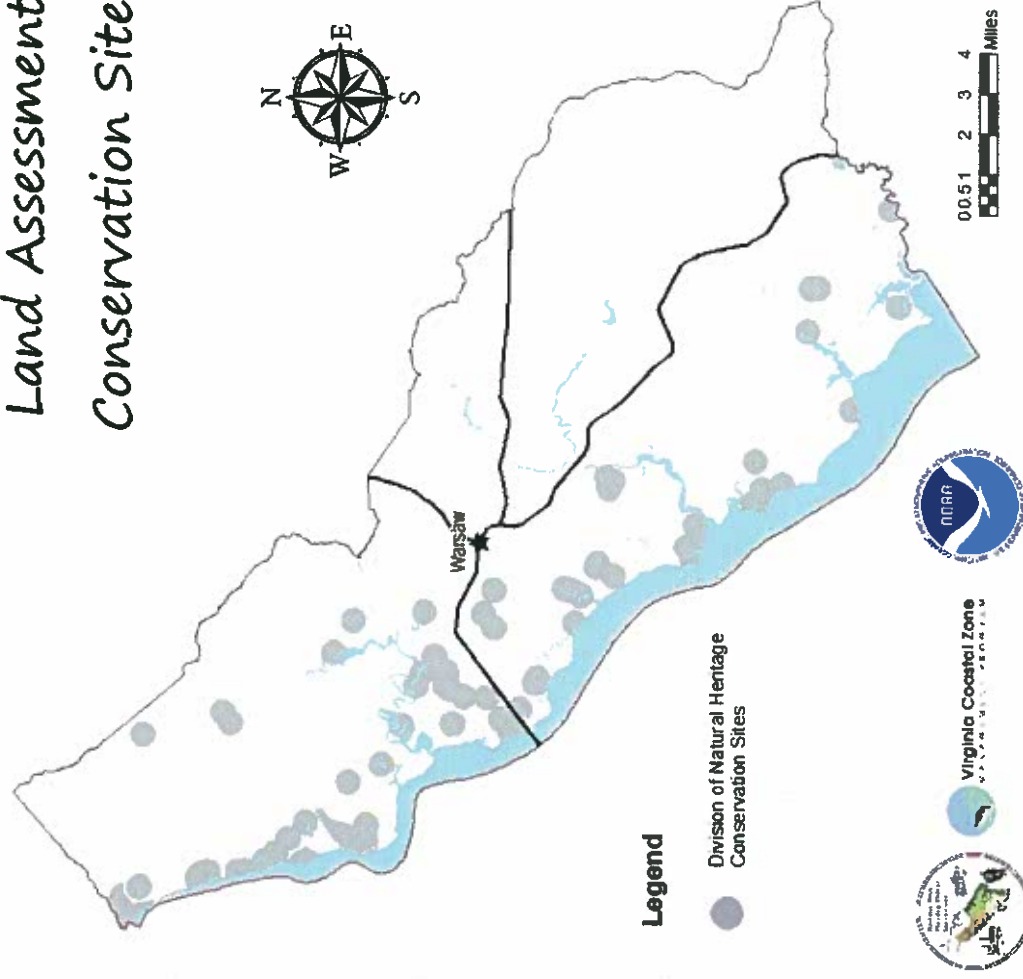
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Richmond County: Virginia Conservation Needs Land Assessment, Natural Cores Prioritized with Corridors



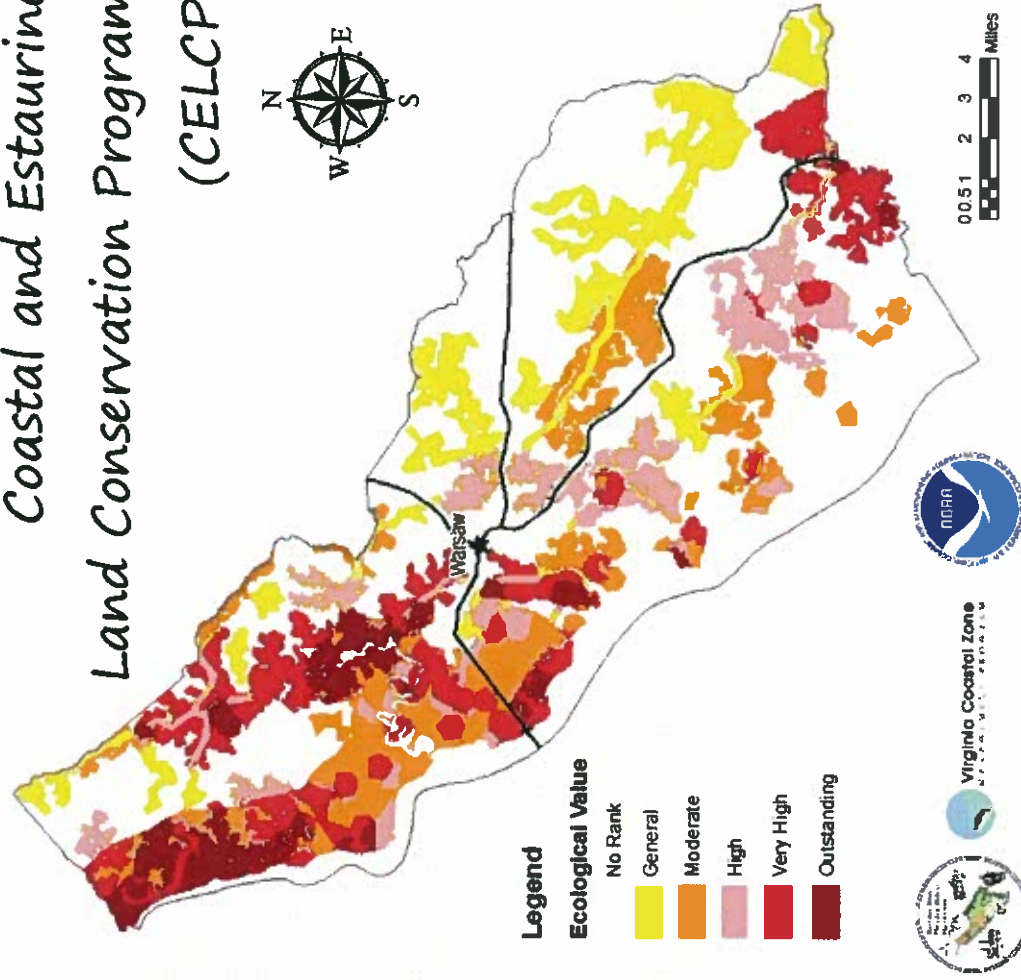
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Richmond County: Virginia Conservation Need Land Assessment, Conservation Sites



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Richmond County: Virginia Coastal Program Coastal and Estuarine Land Conservation Program (CELCP)

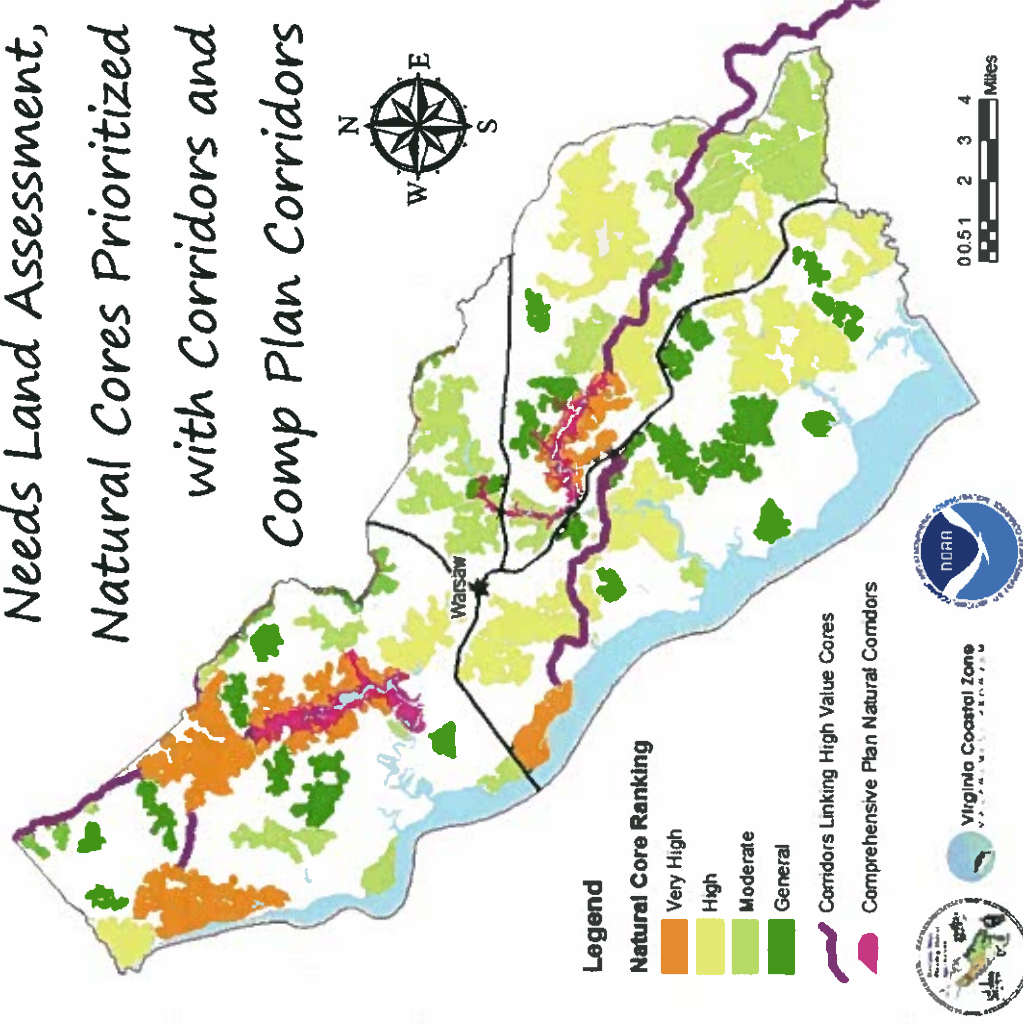


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Planning for the Future of Green Infrastructure in Richmond County

- NNPDC staff would like to work with the Planning Commission in the next couple of months to help customize the available data to the county's vision of the future of natural areas in the county
- NNPDC staff would eventually hope that this Green Infrastructure Plan would be included in the Revised Comprehensive Plan

Richmond County: Virginia Conservation Needs Land Assessment, Natural Cores Prioritized with Corridors and Comp Plan Corridors

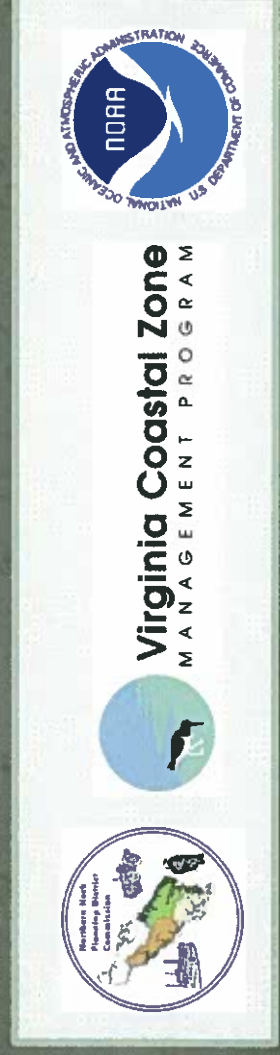


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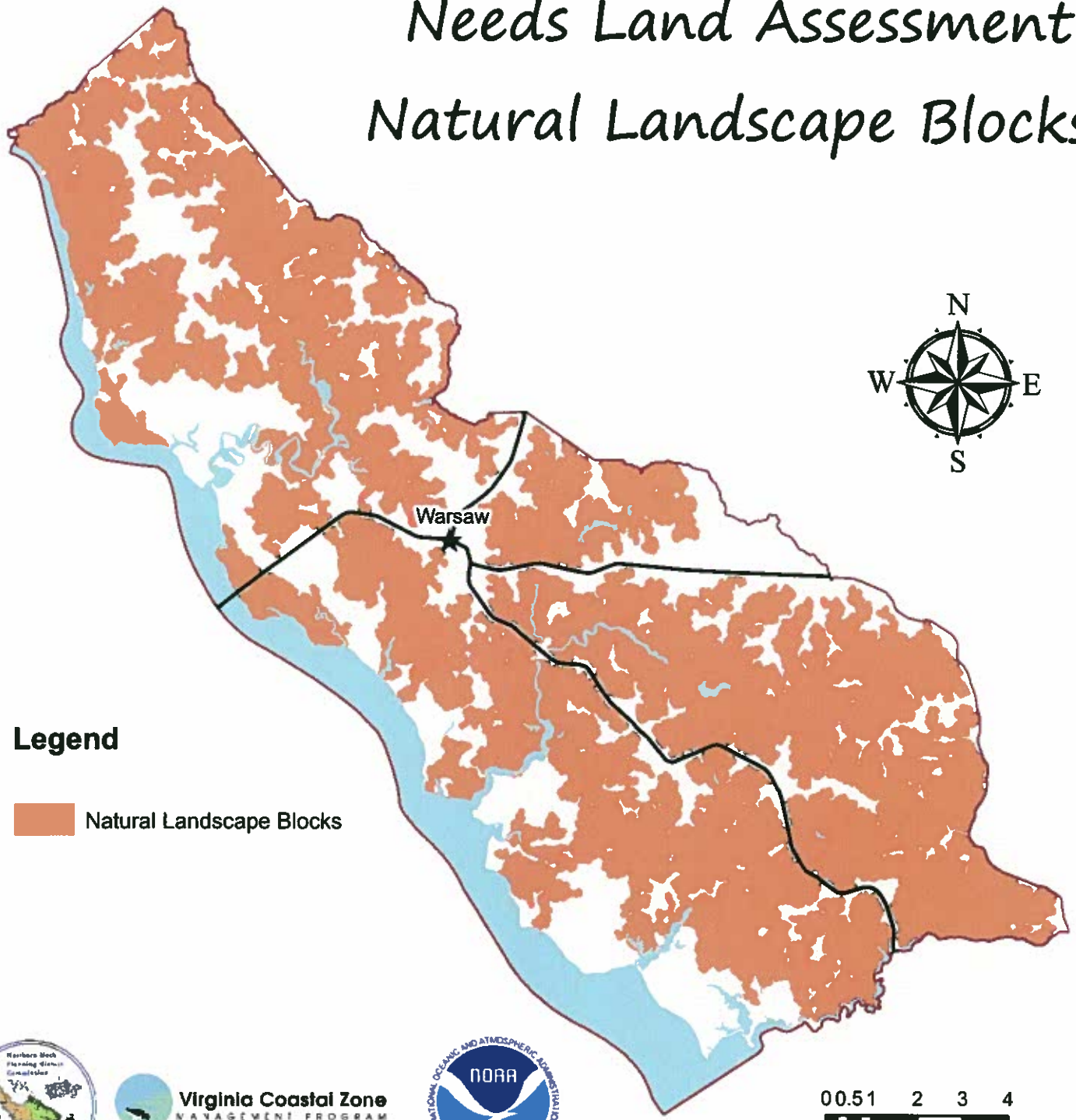
I look forward to working with you!

Stuart McKenzie
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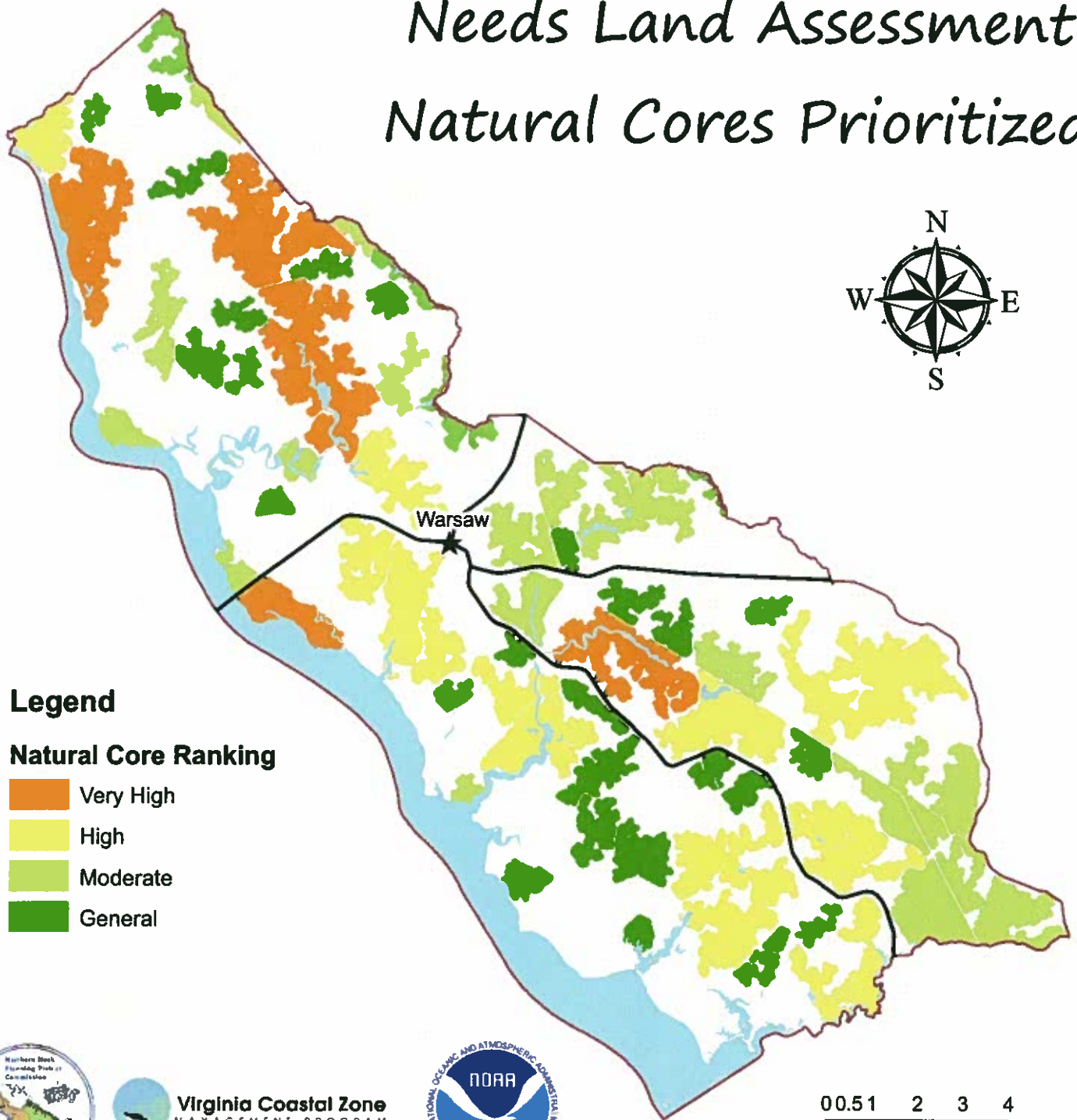


Richmond County: Virginia Conservation Needs Land Assessment, Natural Landscape Blocks



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Richmond County: Virginia Conservation Needs Land Assessment, Natural Cores Prioritized

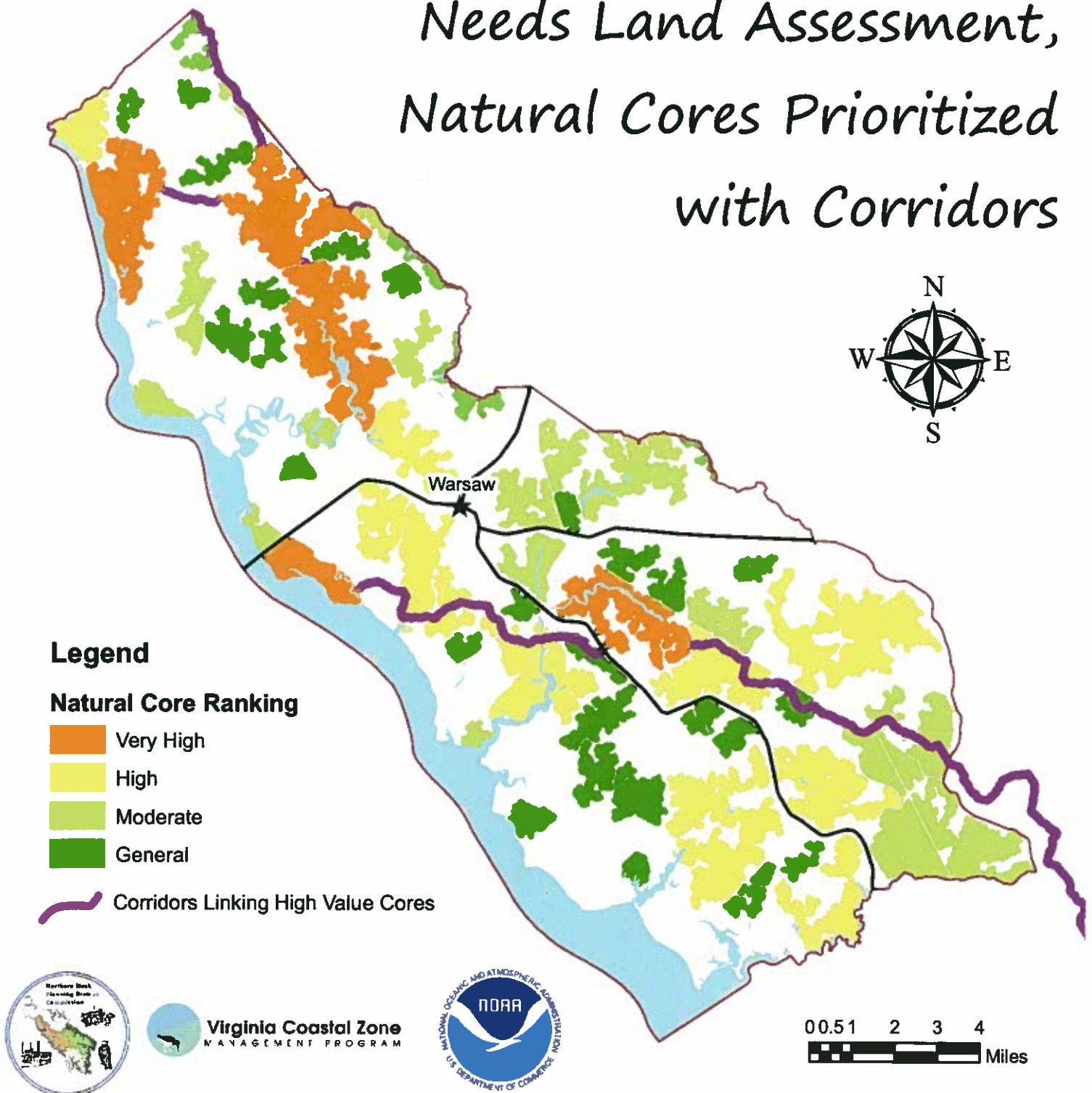


Virginia Coastal Zone
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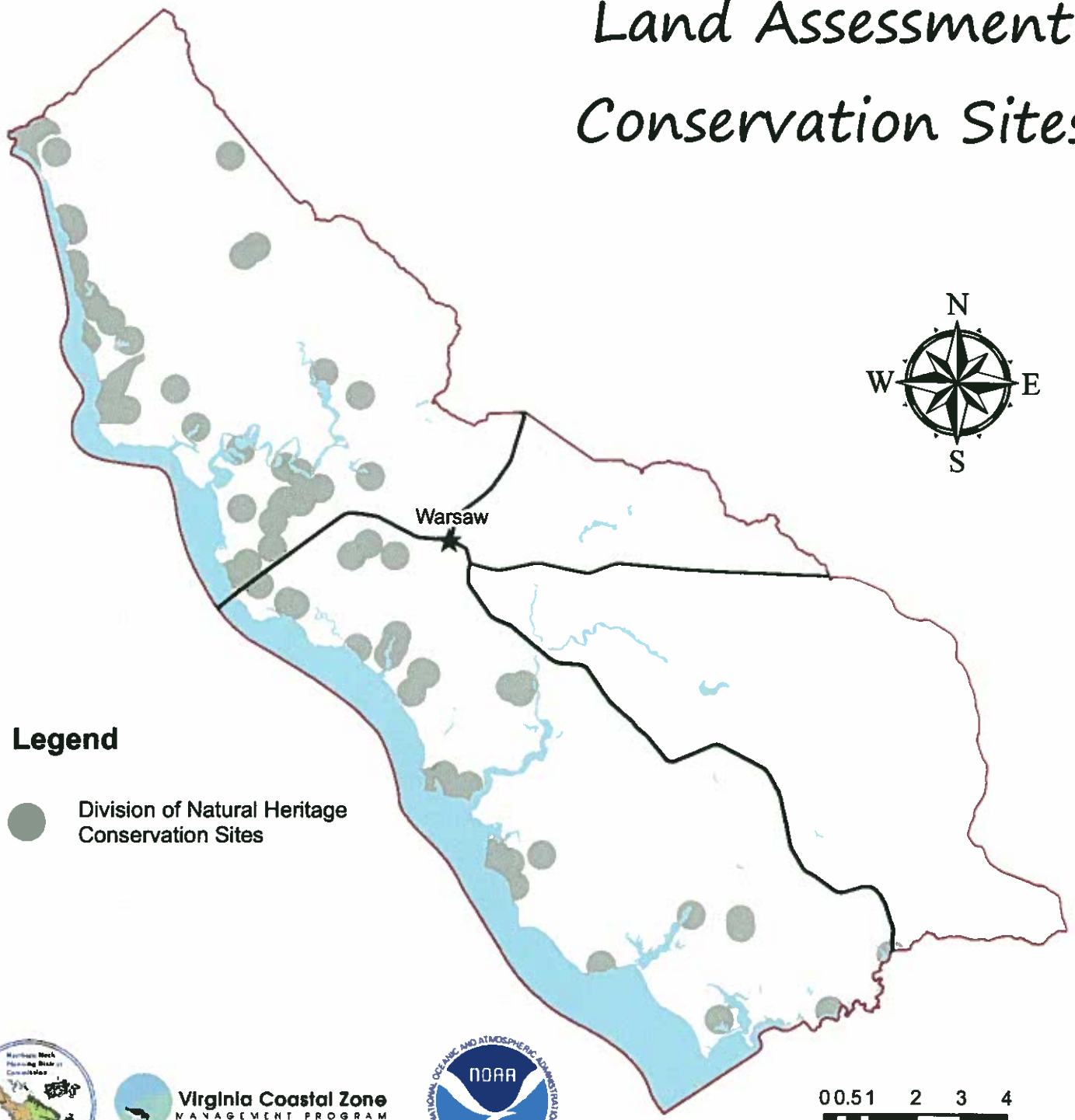
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Richmond County: Virginia Conservation Needs Land Assessment, Natural Cores Prioritized with Corridors



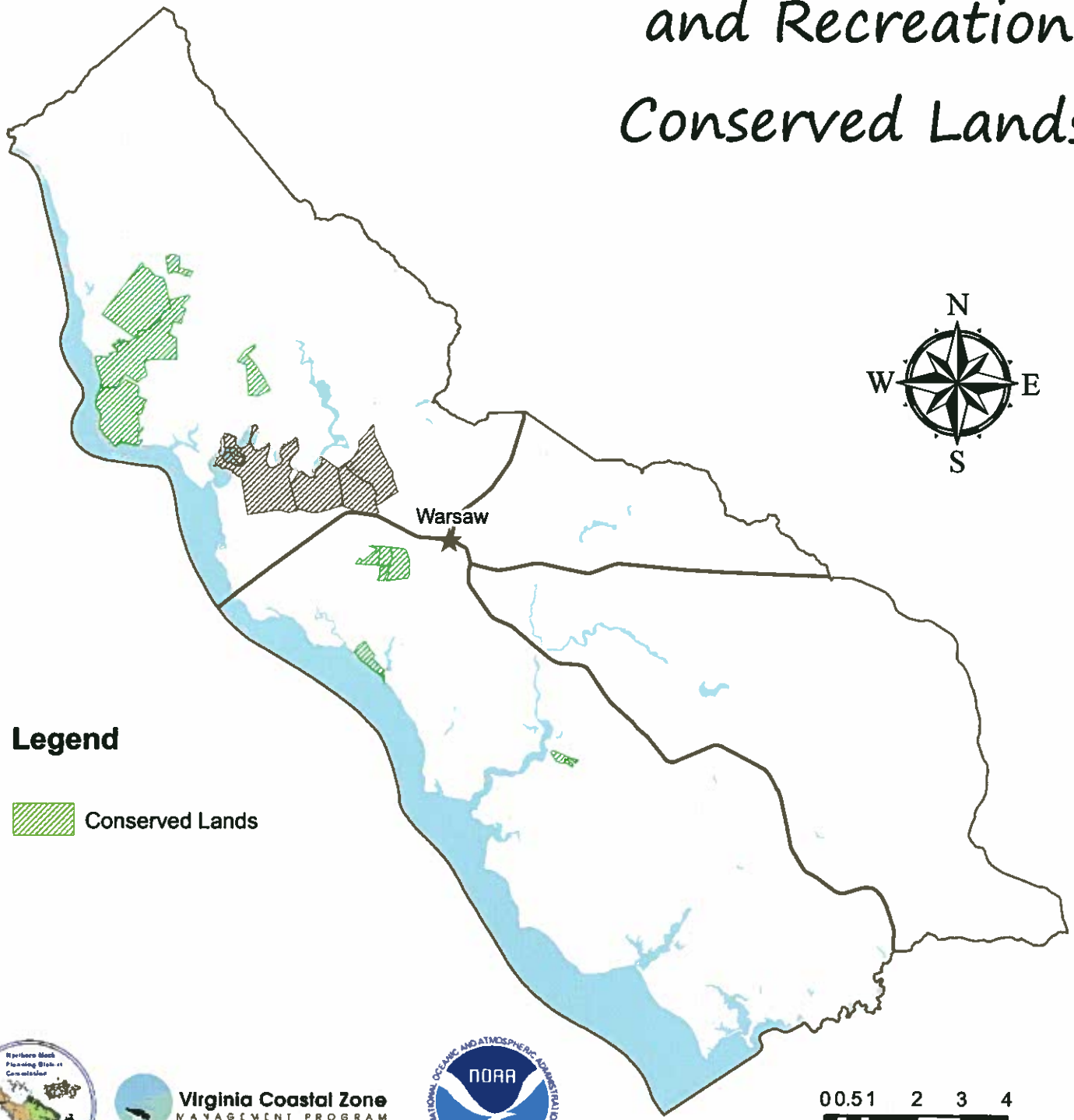
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Richmond County: Virginia Conservation Need Land Assessment, Conservation Sites



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Richmond County: Department of Conservation and Recreation, Conserved Lands

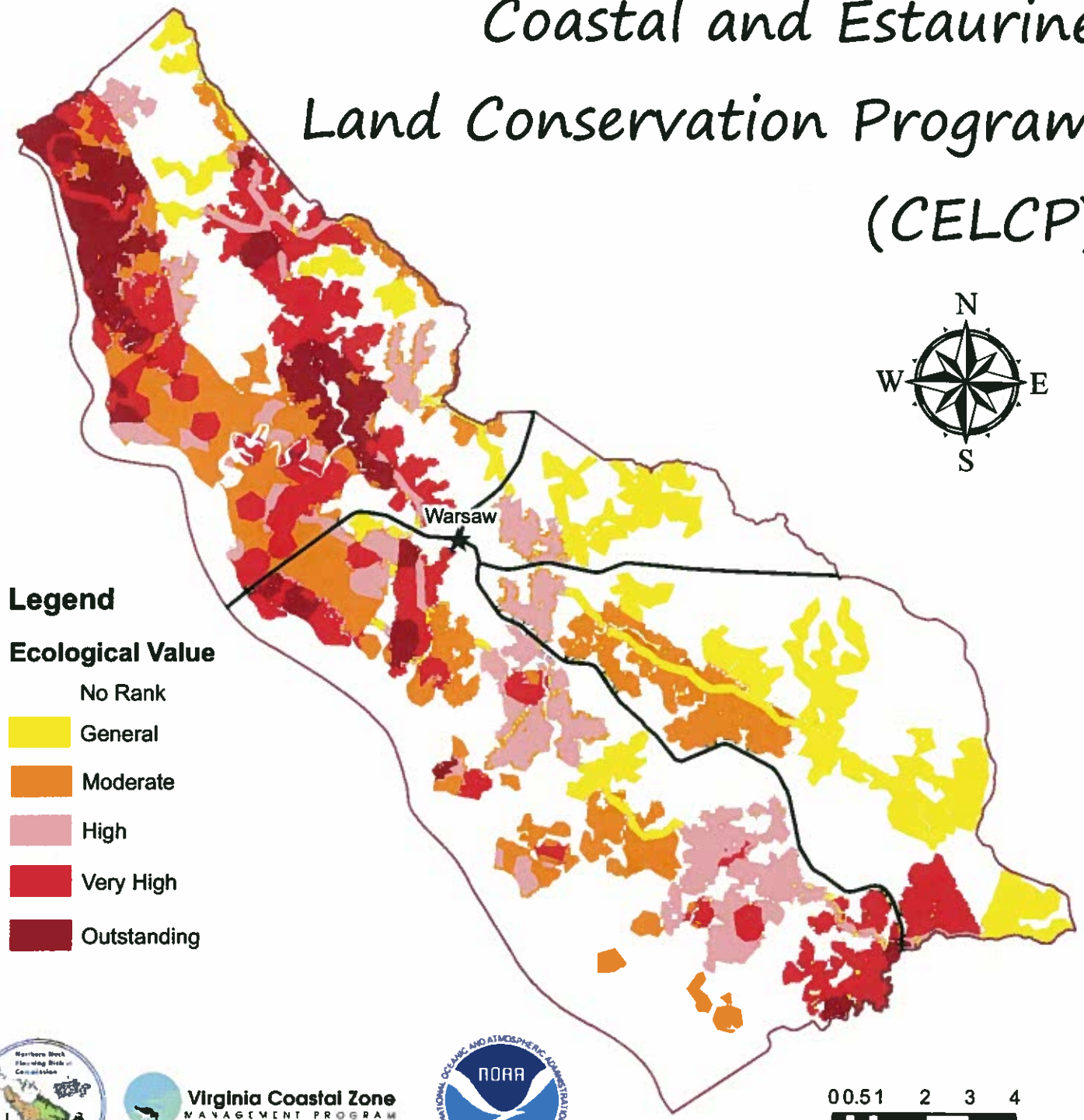


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Richmond County: Virginia Coastal Program Coastal and Estuarine Land Conservation Program (CELCP)



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Richmond County Existing Comprehensive Plan Conservation Areas

Fones Cliffs Area
8.17 sq. miles
4.3% land area

**Total Area Existing
Conservation Areas**
22.08 sq. mi.
11.5% of Land Area



Mulberry Island Area
0.88 sq. miles
0.5% of land area

Mangoright Point Area
1.59 sq. miles
0.8% land area

Legend



Existing Future Land Use Plan Map
Conservation Areas

Lancaster Creek Area
11.44 sq. miles
6.0% land area

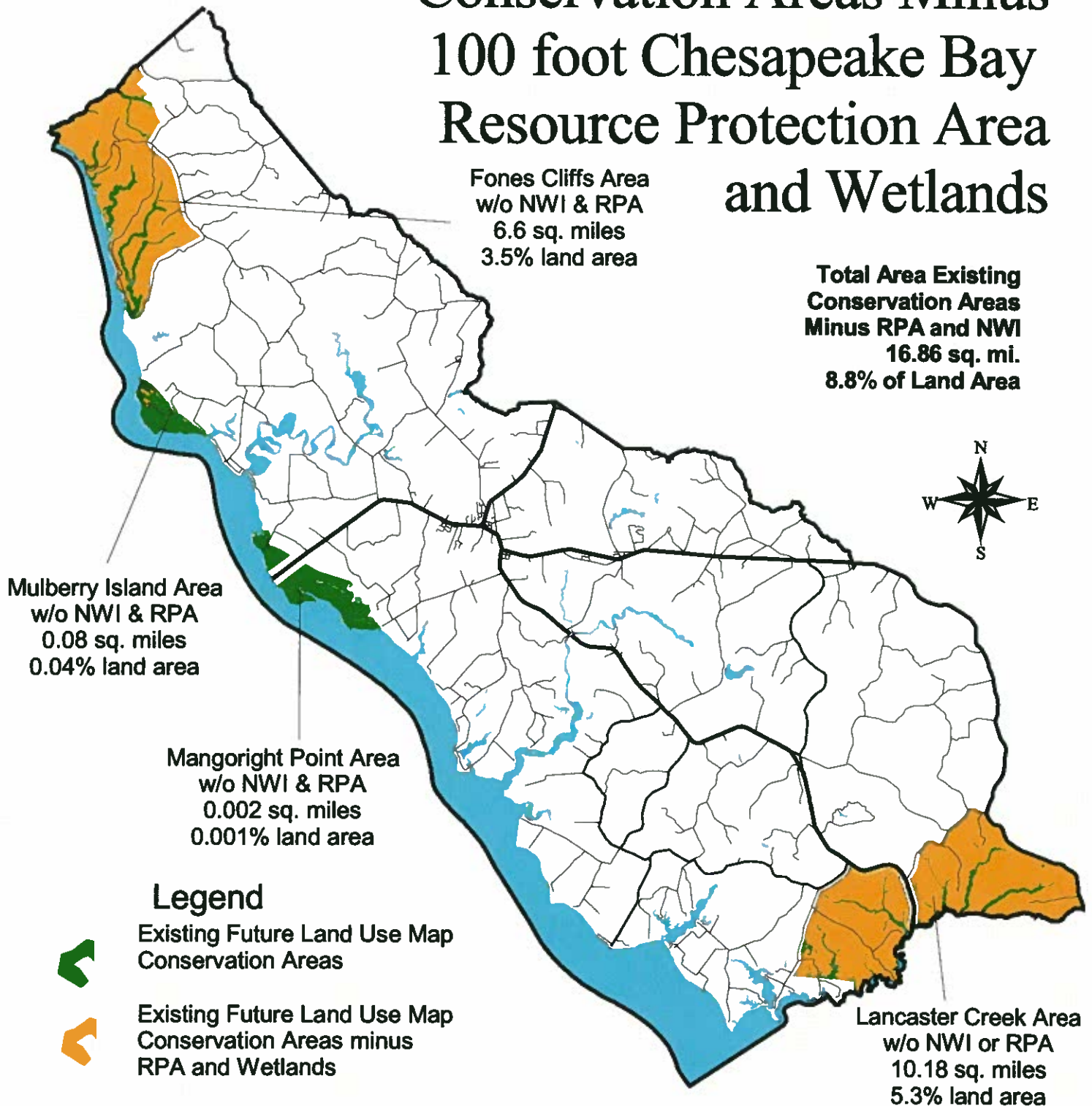


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Richmond County Existing Comprehensive Plan Conservation Areas Minus 100 foot Chesapeake Bay Resource Protection Area and Wetlands



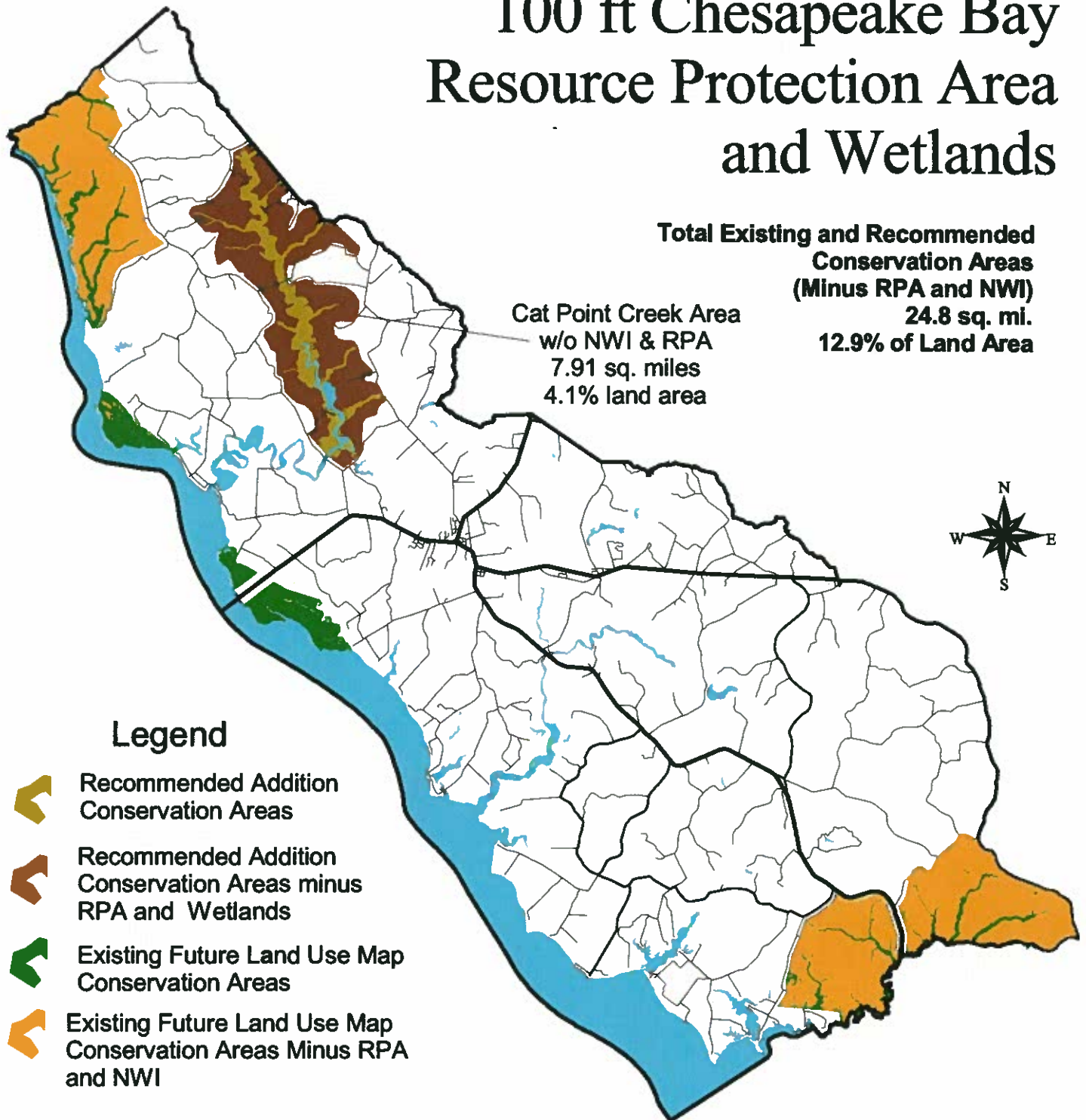
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Richmond County Recommended Addition to Comprehensive Plan Conservation Areas



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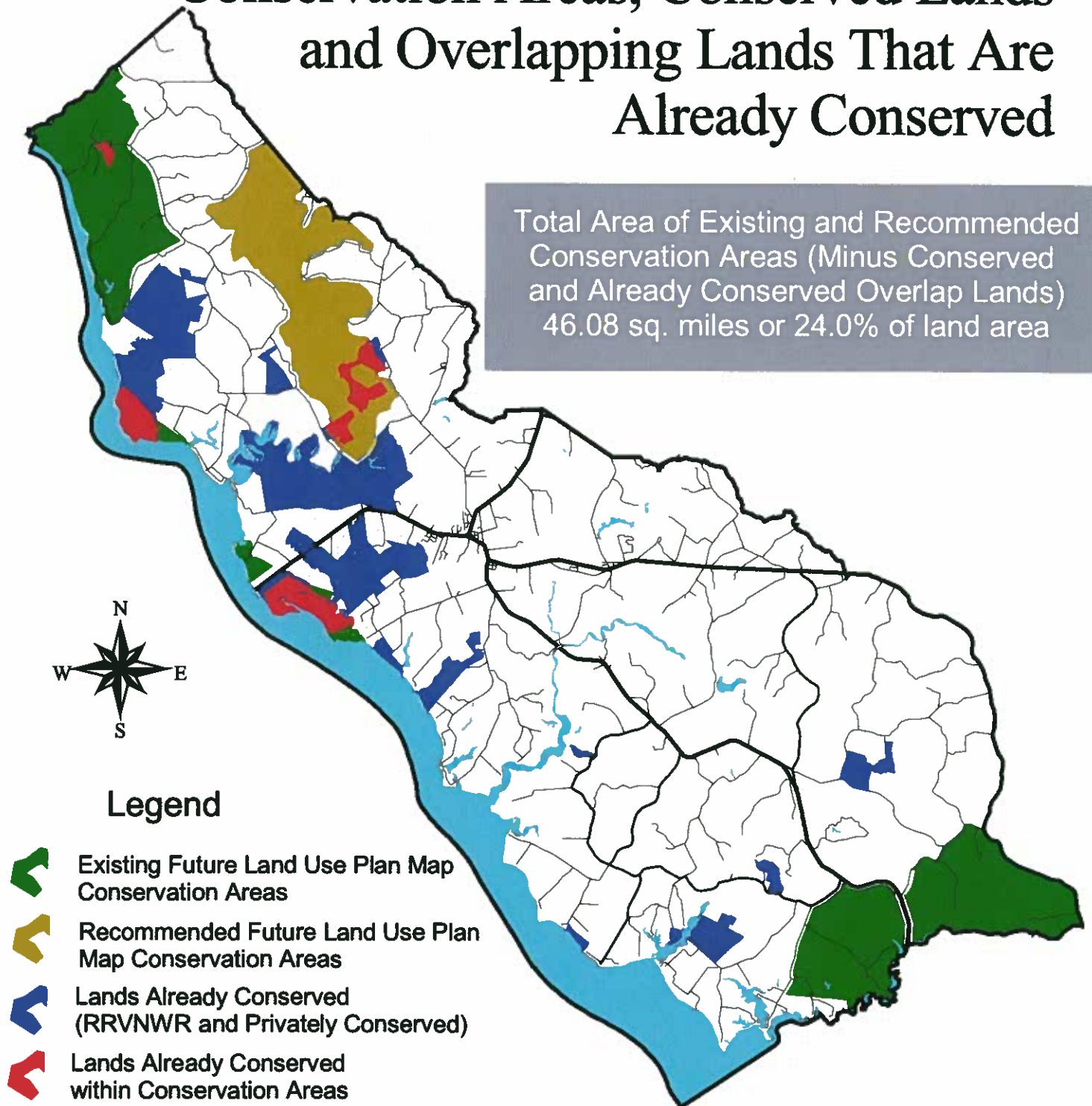
Richmond County: Recommended Conservation Areas Minus 100 ft Chesapeake Bay Resource Protection Area and Wetlands



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Richmond County: Existing and Recommended Comprehensive Plan Conservation Areas, Conserved Lands and Overlapping Lands That Are Already Conserved

Total Area of Existing and Recommended Conservation Areas (Minus Conserved and Already Conserved Overlap Lands)
46.08 sq. miles or 24.0% of land area



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Richmond County: Existing and Recommended Comprehensive Plan Conservation Areas (minus RPA and Wetlands), and Other Conserved Lands (Private and RRVNWR)

Total Area of Conservation Areas and Lands Already Conserved (minus lands already conserved within Conservation Areas, Chesapeake RPA and Wetlands)
47.78 sq. miles or 19.7% of land area



Legend

-  Existing Conservation Areas
-  Existing Conservation Areas w/o RPA and Wetlands
-  Recommended Conservation Areas
-  Recommended Conservation Areas w/o RPA and Wetlands
-  Lands Already Conserved (RRVNWR and Privately Conserved)
-  Lands Already Conserved within Conservation Areas



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Materials Produced by Northern
Neck Planning District Commission
to Support Task 12.05 Blue-Green
Infrastructure Planning Project,
Westmoreland County
2008-2009



Virginia Coastal Zone
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2008-2009

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The Northern Neck Regional

Green Infrastructure Planning Project

Westmoreland Planning Commission Work Session, September 28, 2009

Green Infrastructure Historical Background

- In the 1950's America's economy was booming, post war development proceeded at a rapid pace, with little respect for the environment.
- In the 1960's citizens started to realize the consequences of rapid and widespread growth on the quality of our waterways, and wildlife
- In the 1970's the problem got so bad the Congress passed the Clean Water Act of 1970 to "fix" the problems with water quality caused by all this growth

Green Infrastructure Historical Background, cont'd.

- In the 1980's the regulatory and development community applied technology to manage stormwater and other unintended consequences of growth
- In the 1990's the regulatory and development community began to realize that human engineered systems were not helping to clean our waterways, in fact they might be causing some of the problems
- Around 2000, scientists and engineers began to "rediscover" the way the natural environment cleanses water and air, and realize that natural processes work MUCH BETTER than human engineered processes, while the cost was much lower or nil

So, what IS Green Infrastructure?

- “Green Infrastructure” refers to natural resources and working lands that provide clean water and air, ensure our rural quality of life and help sustain our economy
- Examples of Westmoreland County’s Green Infrastructure include our forests, waterways such as the Nomini, soils (for sustainable agriculture), wildlife areas (throughout the county), wetlands (Cat Point Creek), Dunes, Beaches, and Cliffs (Horsehead Cliffs), historic landscapes (Stratford Hall, Geo. Washington’s Birthplace, Monroes Birthplace) and Parks (Westmoreland State Park).

What About Green Infrastructure Planning?

- Green Infrastructure Planning connects intact natural habitat areas (cores) through a network of corridors to allow people, wildlife, and plants to moved across the landscape. A connected natural landscape makes species less susceptible to catastrophic events and more resilient because local populations can reinforce themselves.
- The Results: Better Land Use Planning (avoiding high value natural areas as much as possible), Protected Green Infrastructure to filter our water and air, and Healthier natural and human communities.

Northern Neck Regional Green Infrastructure Planning

- The Virginia Coastal Program, housed at the Virginia Department on Environmental Quality, and funded by NOAA is undertaking green infrastructure planning in Virginia's Coastal Zone through the local Planning District Commissions
- Currently, the Richmond Region, the Fredericksburg Region, and the Northern Neck Region are currently working on Green Infrastructure Plans for their member counties
- The NNPDC is working with Westmoreland and Richmond County this year, since they are in the process of revising their Comprehensive Plans. Next year, the NNPDC will begin working with Northumberland and Lancaster Counties on their Green Infrastructure Plan

Green Infrastructure Planning: Lessons Learned in other Regions

- Green Infrastructure planning provides a road map for public and private sector parties to coordinate projects to maximize economic and environmental outcomes
- Green infrastructure pays dividends just like schools, roads or other infrastructure – in the form of healthier communities, new businesses and jobs and reduced grey infrastructure costs
- The effective management of green infrastructure assets is the result of many parties working together, using tools that reflect and respect the rights of landowners
- Finally, the time is ripe to undertake green infrastructure planning in the Northern Neck Region

Tools to assist in Green Infrastructure Planning In Virginia

- The Virginia Natural Heritage Program of the Department of Conservation and Recreation has developed the Virginia Conservation and Natural Landscape Assessment (VCLNA) for identifying, prioritizing and linking natural lands in Virginia. These natural lands or cores are assigned a rank so that the more valuable lands are scored higher, while the less valuable lands score lower. This gives Westmoreland County staff and citizens information about what natural assets currently exist in the County and their contribution to the natural environment so that informed decisions can be made in their management

Examples of Green Infrastructure Planning Data Available

SYNOPSIS OF THE VIRGINIA CONSERVATION LANDS NEEDS ASSESSMENT

The VCLNA is a flexible, widely applicable tool for integrating and coordinating the needs and strategies of different conservation interests, using GIS (Geographic Information System) to model and map land conservation priorities and actions in Virginia. The VCLNA consists of seven complex models:

ECOLOGICAL MODEL

The Ecological Model is a collection of models and products including the Virginia Natural Landscape Assessment (VNLNA), DCR's Wildlife Action Plan, and a biodiversity assessment using species and natural community information from DCR's Natural Heritage Program. The VNLNA is a GIS-based model that integrates information on land cover, land use, and natural resources to identify and connect the most important natural, unfragmented lands based on consideration of biological and ecological value and integrity.



CULTURAL ASSET MODEL

The Virginia Cultural Asset Model is a statewide model showing the cultural value of lands in Virginia. The Division of Natural Heritage worked closely with the Virginia Department of Historic Resources to identify and prioritize important cultural assets in Virginia, including archaeological and architectural sites, and American Indian Areas.



VULNERABILITY MODEL

The Virginia Vulnerability Model (or growth prediction model) are four statewide and one corporate model showing predicted growth patterns across the landscape. The model uses GIS to analyze land use patterns, including urban, suburban, and rural, and to predict future growth patterns. It also identifies and maps potential risks to natural resources, including loss of habitat, fragmentation, and degradation of water resources.



FOREST ECONOMICS MODEL

The Forest Economics Model is a GIS effort to map values forestland with economic value. The Division worked closely with the Virginia Department of Forestry to analyze biophysical parameters, management constraints and socioeconomic influences.



RECREATION MODEL

The Virginia Recreation Model is a GIS effort to map the value of lands as they contribute to recreational opportunity. The Division worked closely with the Virginia Department of Game and Inland Fisheries as well as DCR's Division of Planning and Recreation and numerous landowners and users to analyze a variety of recreational demands (including but not limited to hunting, fishing, hiking, and other outdoor recreation activities) and to map potential recreation resources (including but not limited to water resources, wildlife, and scenic resources) in an effort to model recreational value across the landscape.



WATERSHED INTEGRITY MODEL

The Virginia Watershed Integrity Model is a GIS effort to map the relative value of land as it contributes to water quality and watershed integrity. The Division worked closely with the Virginia Department of Forestry and Virginia Commonwealth University Center for Environmental Studies to analyze a variety of parameters focused on identifying important terrestrial features that contribute to water resources, and, therefore, watershed integrity.



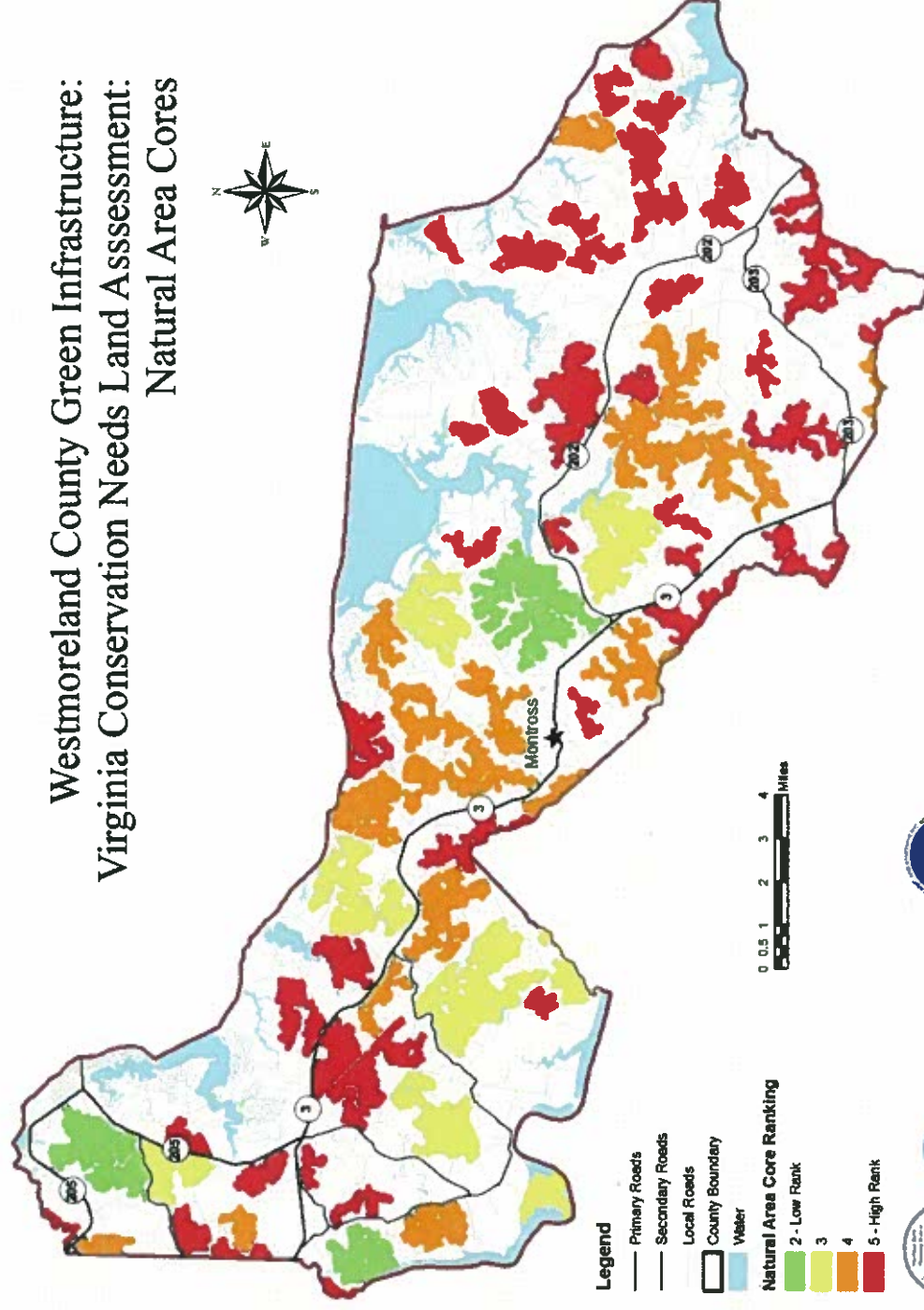
AGRICULTURAL MODEL

The Virginia Agricultural Model is a GIS effort to map important agricultural lands in Virginia. The Division worked closely with the Virginia Department of Agriculture and Consumer Services and the Virginia Department of Forestry to identify and map important agricultural lands, including cropland, pasture, and forest land used for agriculture.



Westmoreland Natural Area Cores

Westmoreland County Green Infrastructure: Virginia Conservation Needs Land Assessment: Natural Area Cores



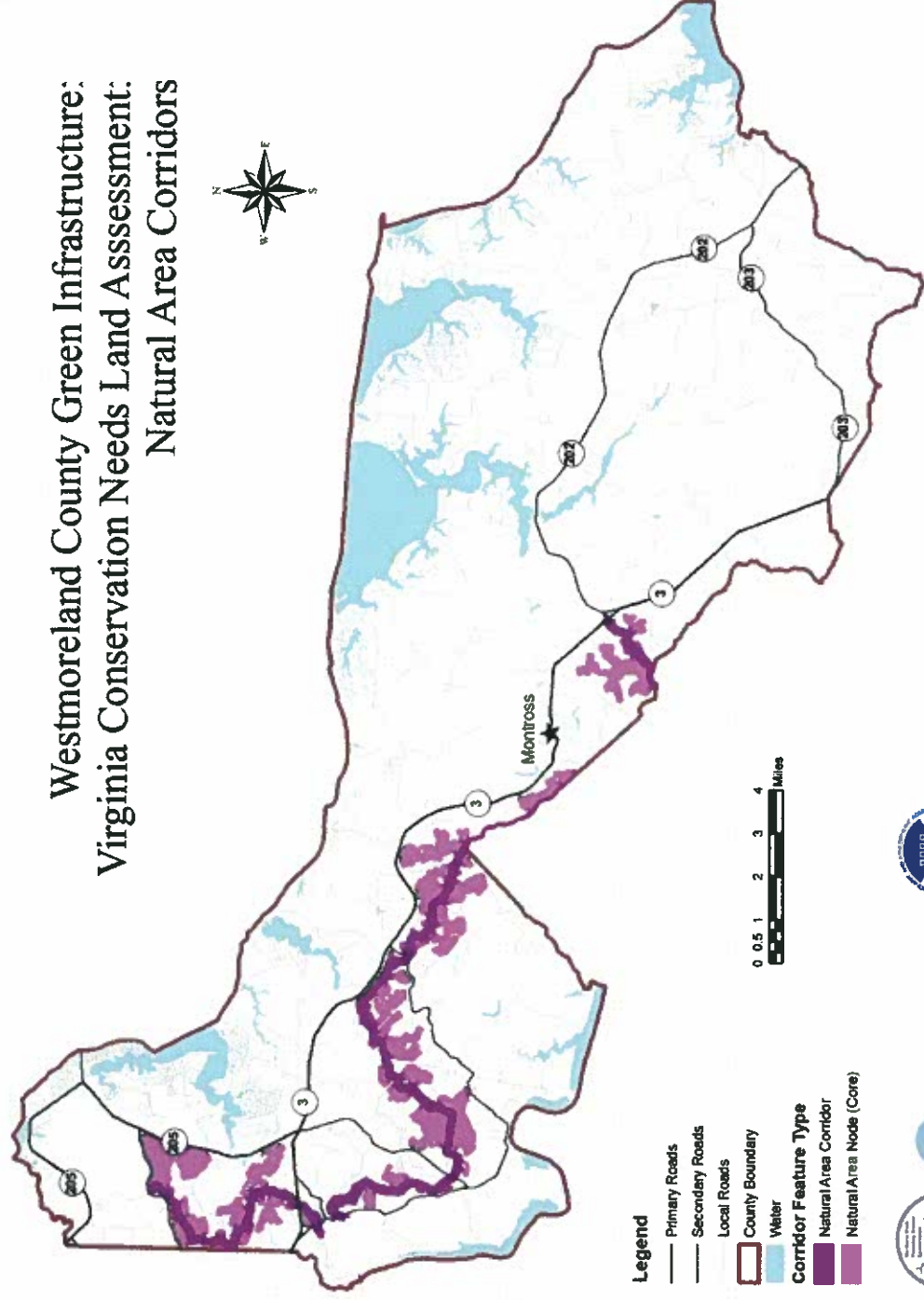
Virginia Coastal Zone
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Westmoreland Natural Corridors

Westmoreland County Green Infrastructure: Virginia Conservation Needs Land Assessment: Natural Area Corridors



- Legend**
- Primary Roads
 - Secondary Roads
 - Local Roads
 - ▭ County Boundary
 - ▭ Water
- Corridor Feature Type**
- ▭ Natural Area Corridor
 - ▭ Natural Area Node (Core)



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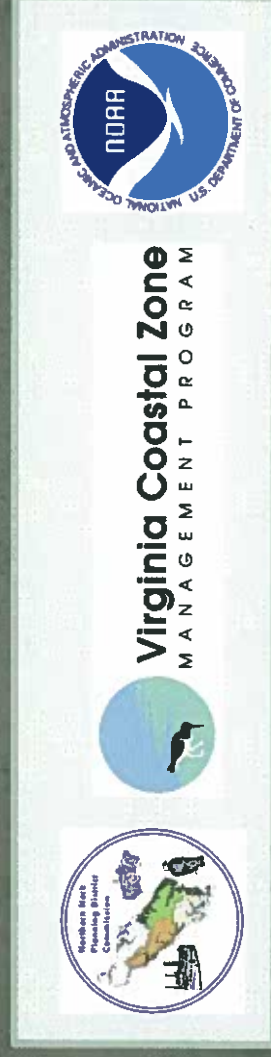


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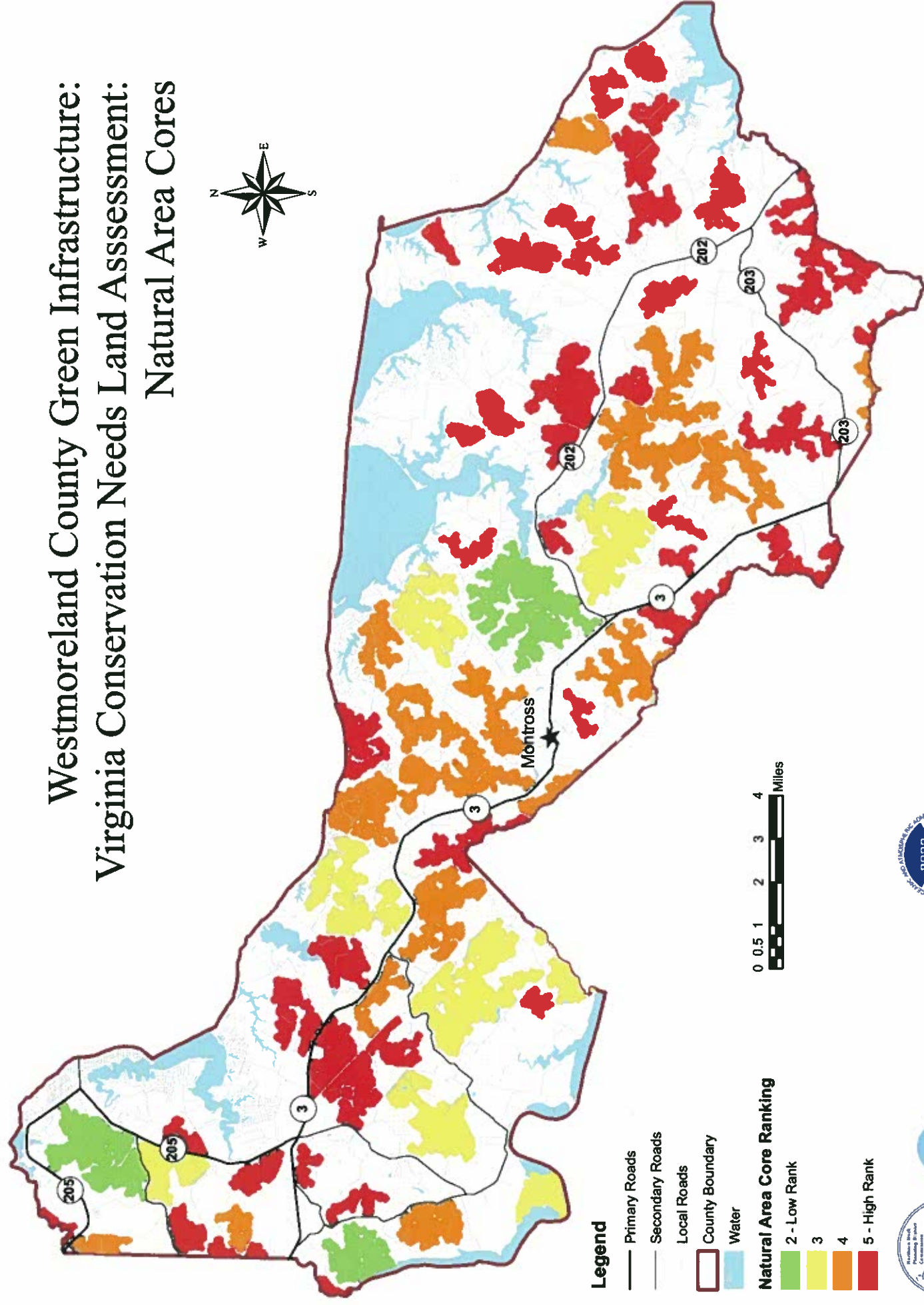
I look forward to working with you!

Stuart McKenzie
Environmental Planner
Northern Neck Planning District Commission
Phone: (804) 333-1900 ext. 25
Email: smckenzie@nnpdci7.state.va.us

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Westmoreland County Green Infrastructure: Virginia Conservation Needs Land Assessment: Natural Area Cores

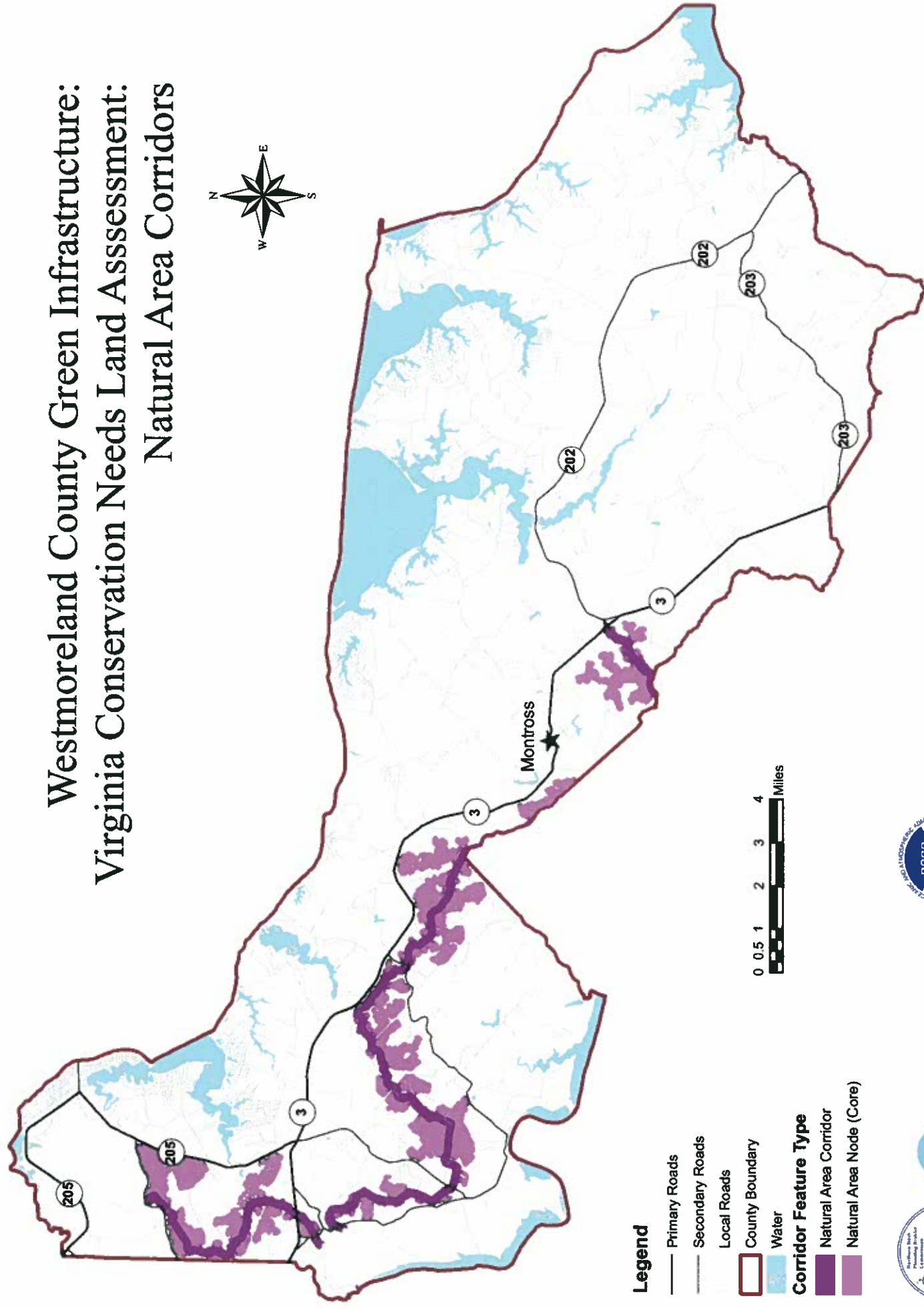


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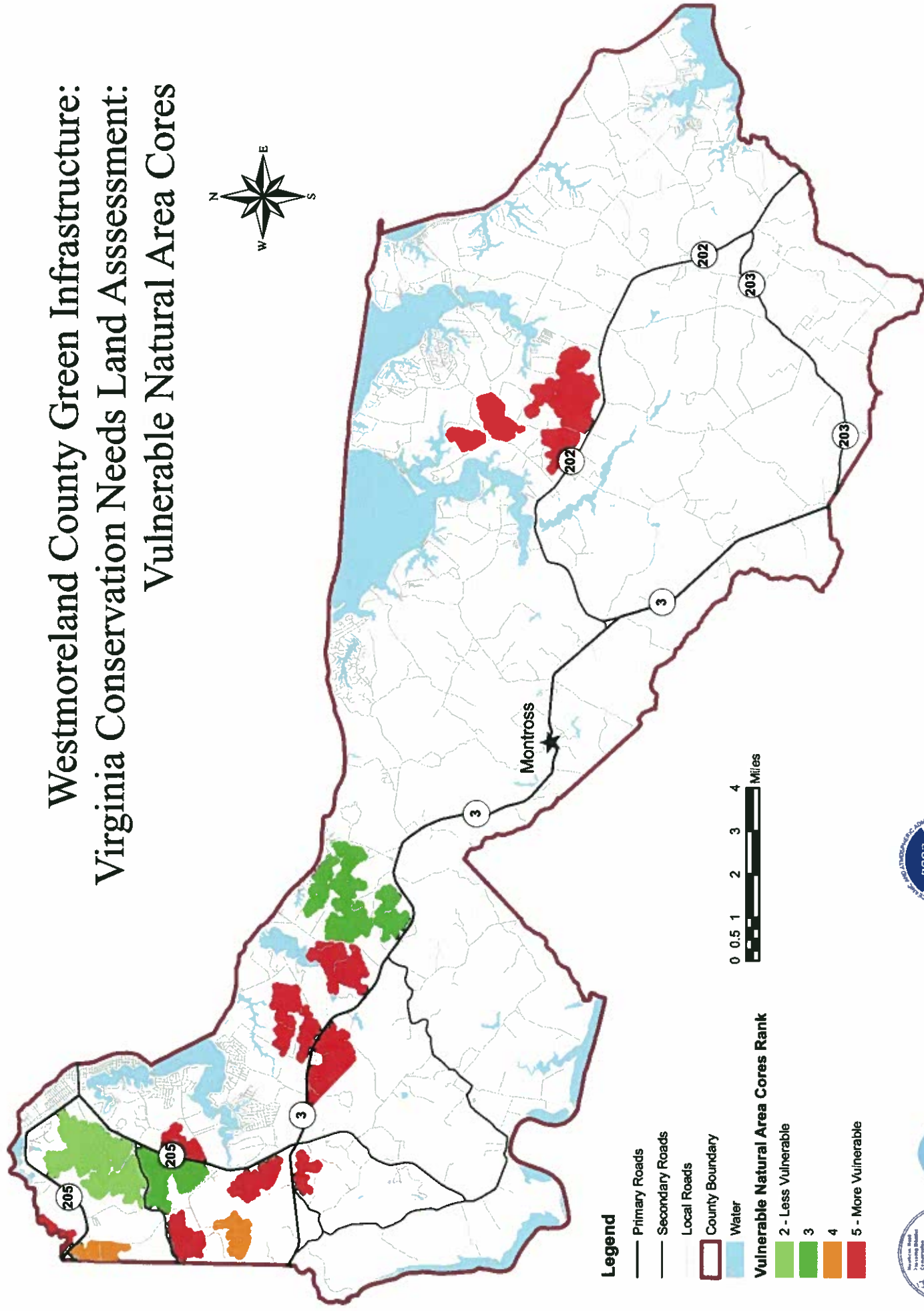
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Westmoreland County Green Infrastructure: Virginia Conservation Needs Land Assessment: Natural Area Corridors



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Westmoreland County Green Infrastructure: Virginia Conservation Needs Land Assessment: Vulnerable Natural Area Cores

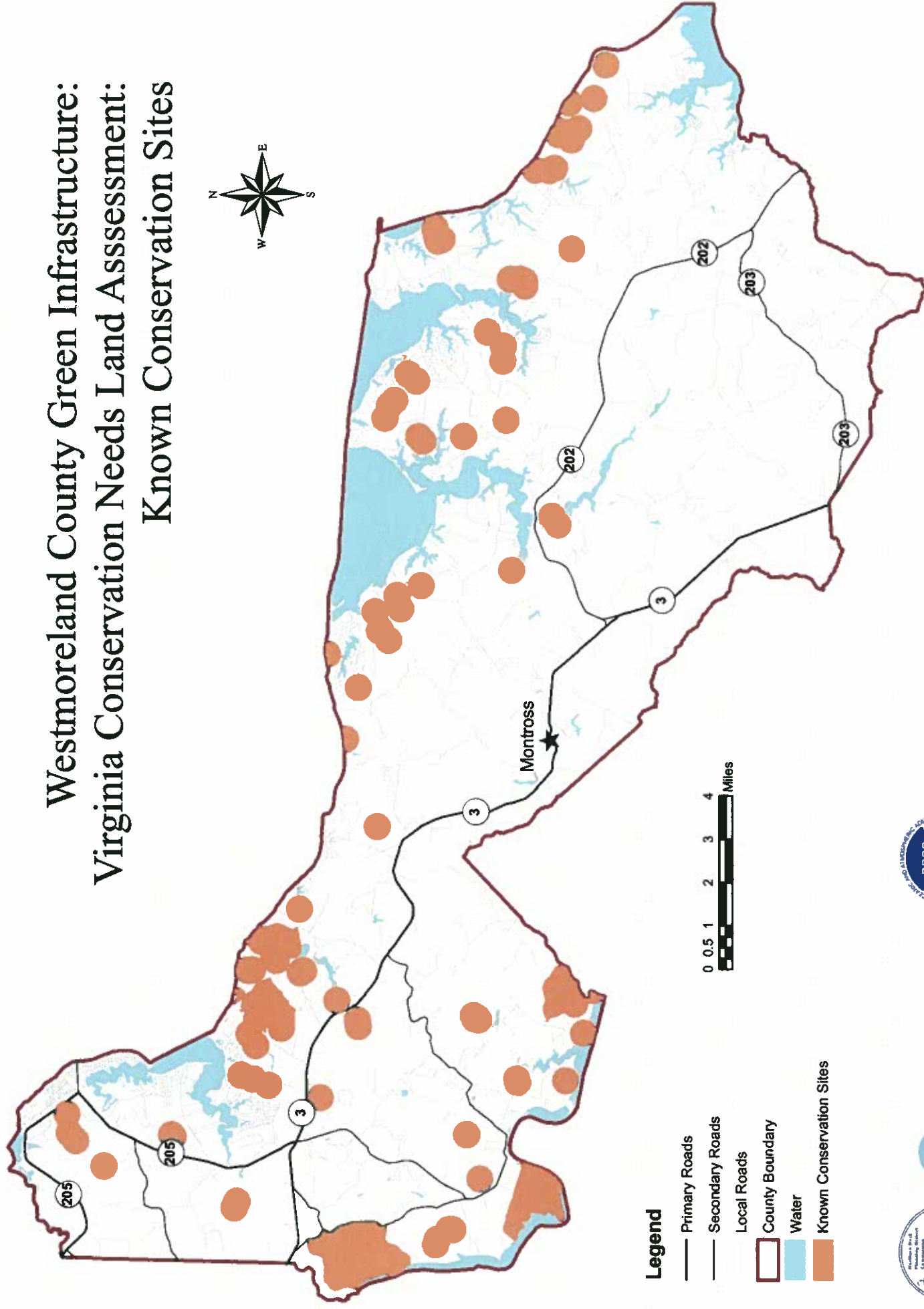


**Virginia Coastal Zone
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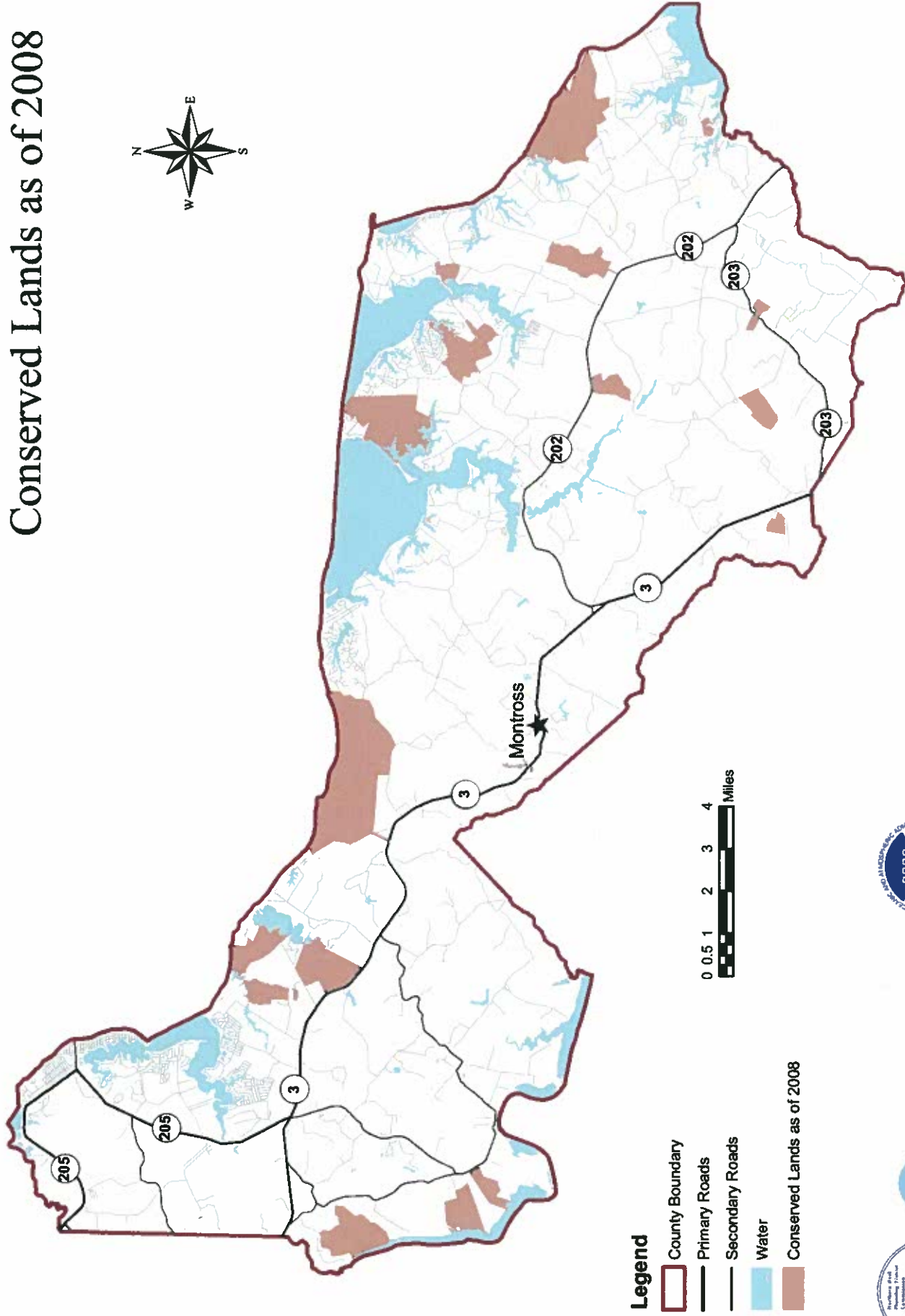
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Westmoreland County Green Infrastructure: Virginia Conservation Needs Land Assessment: Known Conservation Sites



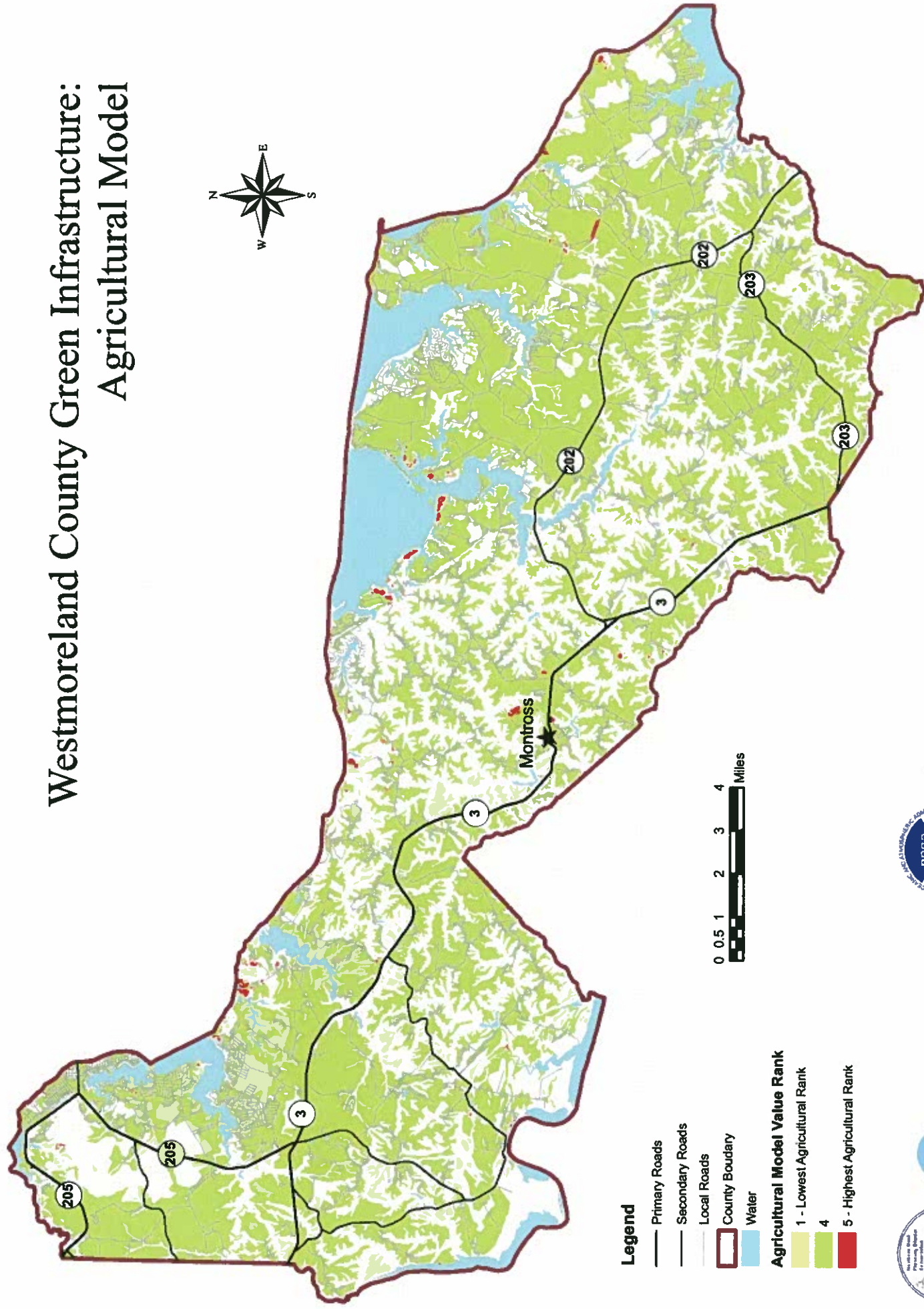
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Westmoreland County Green Infrastructure: Conserved Lands as of 2008



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Westmoreland County Green Infrastructure: Agricultural Model



Legend

- Primary Roads
- Secondary Roads
- Local Roads
- ▭ County Boundary
- ▭ Water

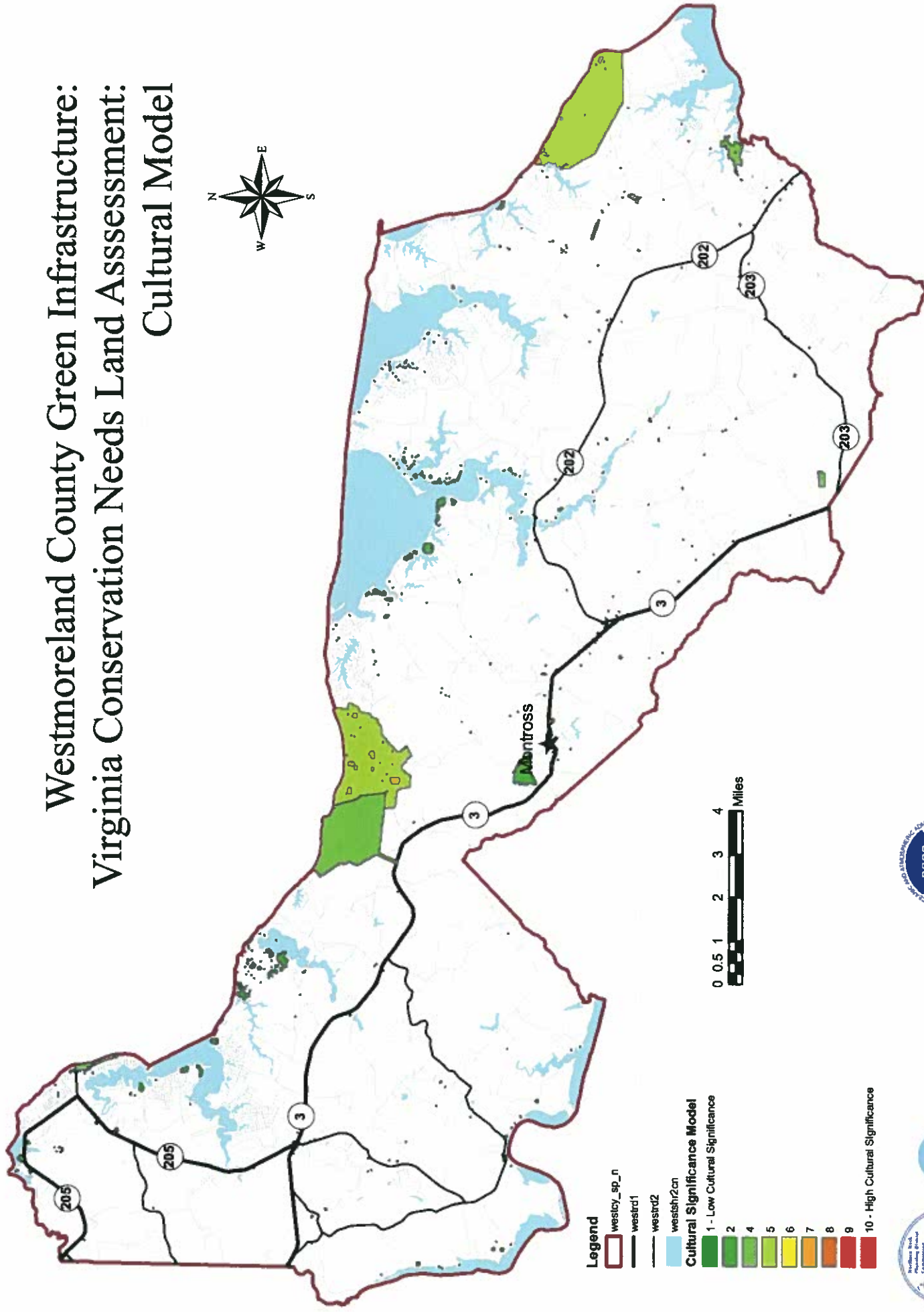
Agricultural Model Value Rank

- 1 - Lowest Agricultural Rank
- 2
- 3
- 4
- 5 - Highest Agricultural Rank



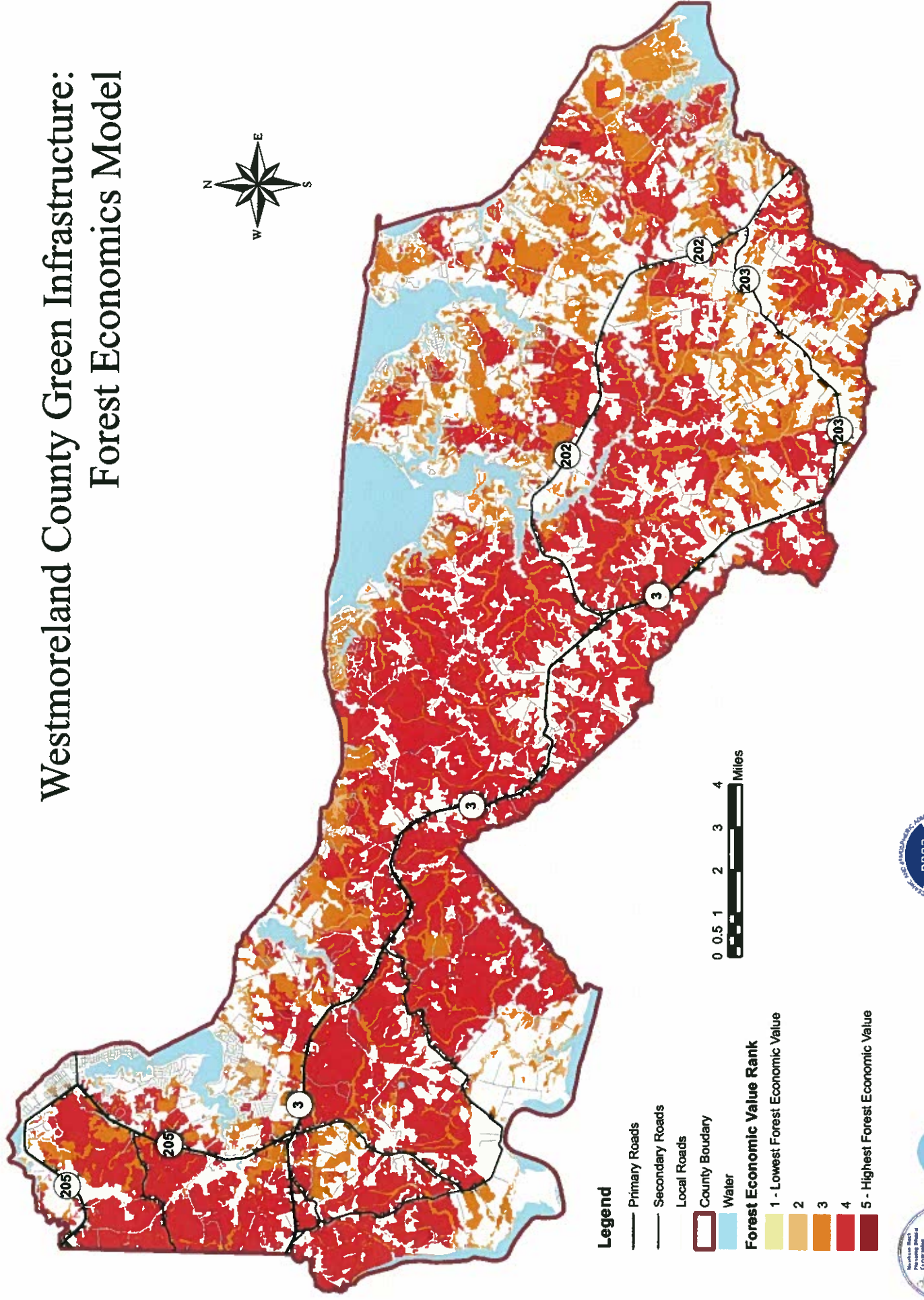
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Westmoreland County Green Infrastructure: Virginia Conservation Needs Land Assessment: Cultural Model



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Westmoreland County Green Infrastructure: Forest Economics Model



Legend

Primary Roads

Secondary Roads

Local Roads

County Boundary

Water

Forest Economic Value Rank

1 - Lowest Forest Economic Value

2

3

4

5 - Highest Forest Economic Value

0 0.5 1 2 3 4 Miles

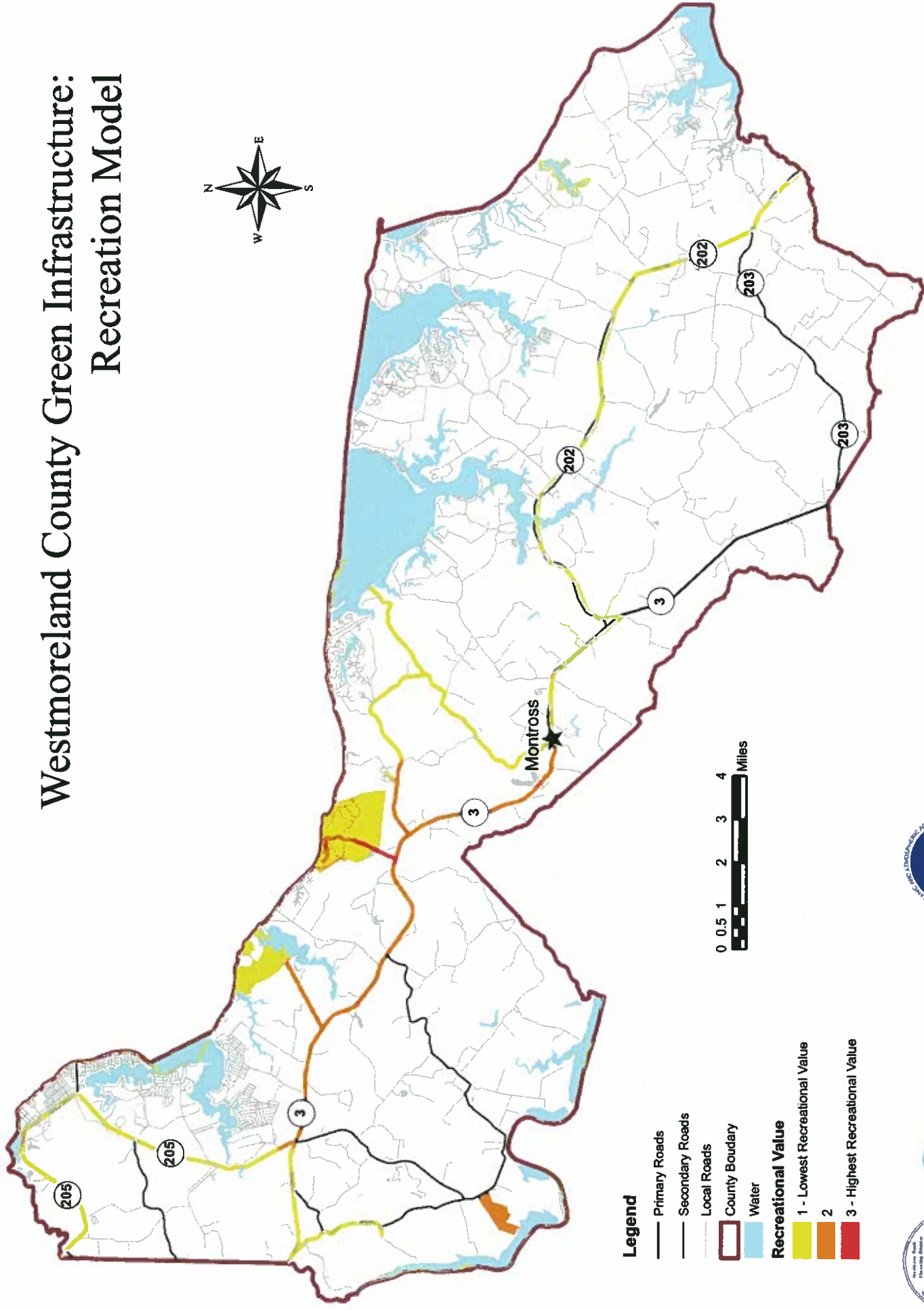


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Westmoreland County Green Infrastructure: Recreation Model



Legend

- Primary Roads
- Secondary Roads
- Local Roads
- County Boundary
- Water

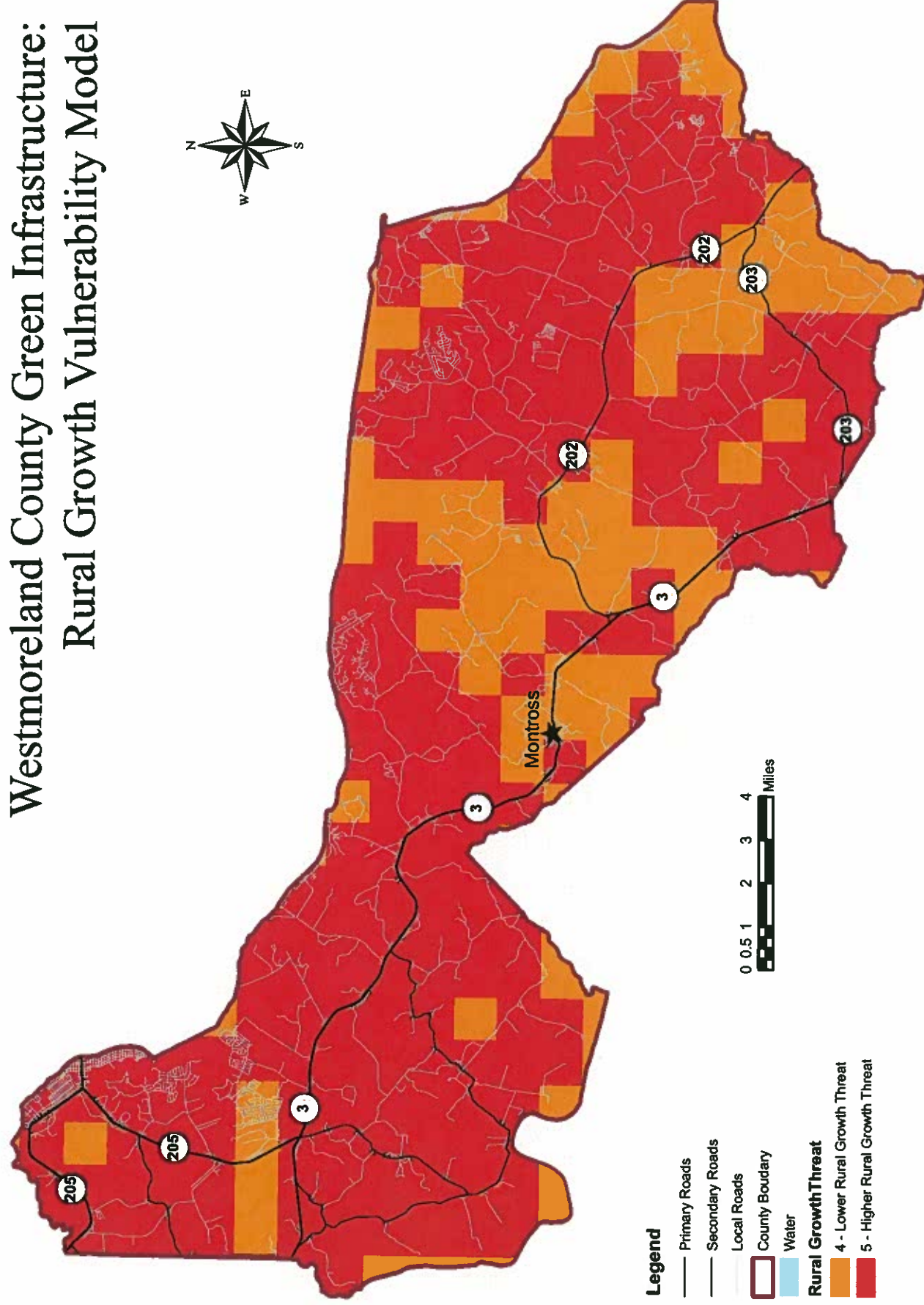
Recreational Value

- 1 - Lowest Recreational Value
- 2
- 3 - Highest Recreational Value



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Westmoreland County Green Infrastructure: Rural Growth Vulnerability Model



Legend

- Primary Roads
- Secondary Roads
- Local Roads
- County Boundary
- Water

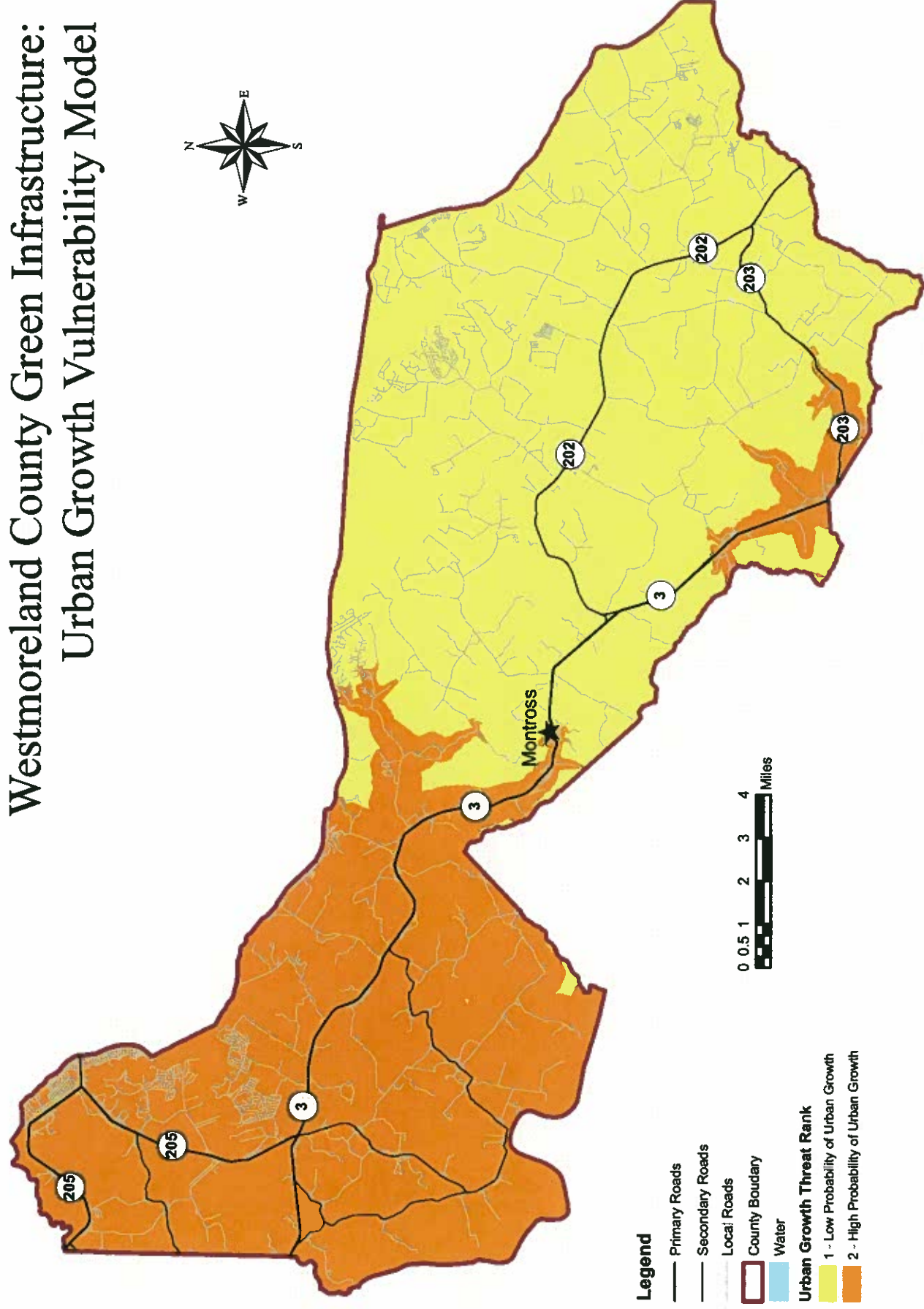
Rural GrowthThreat

- 4 - Lower Rural Growth Threat
- 5 - Higher Rural Growth Threat



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Westmoreland County Green Infrastructure: Urban Growth Vulnerability Model

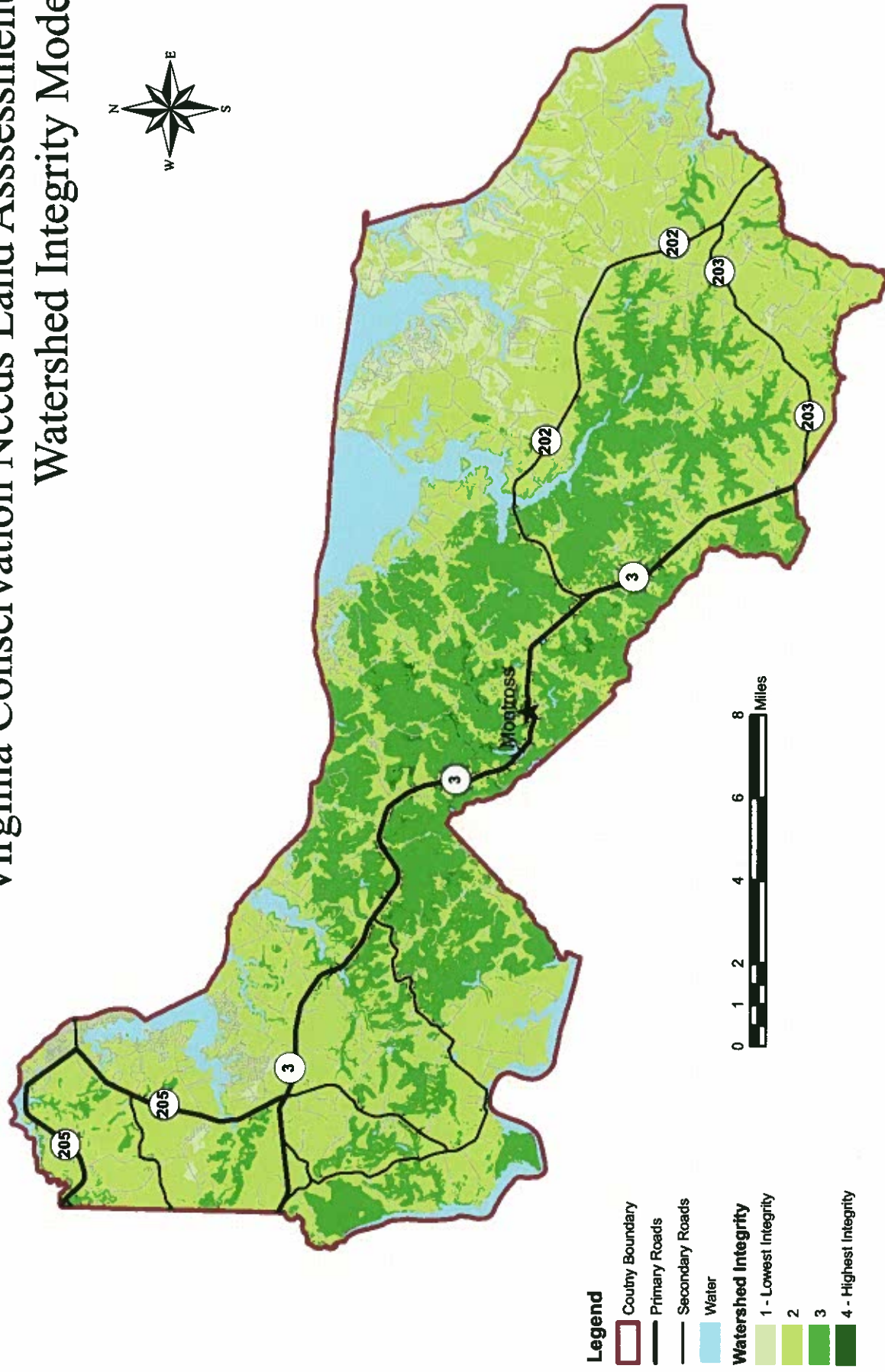


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Westmoreland County Green Infrastructure: Virginia Conservation Needs Land Assessment: Watershed Integrity Model



Legend

- County Boundary
- Primary Roads
- Secondary Roads
- Water

Watershed Integrity

- 1 - Lowest Integrity
- 2
- 3
- 4 - Highest Integrity



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